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ABSTRACT

This is the third annual survey of total graduate and postdoctoral enrollment in science and engineering in the United States. Data elements collected from 7,505 departments of 355 Ph.D.-granting institutions include: enrollment status (full and part-time); level of study (first year and beyond first year); citizenship; sex of students; type institution (public or private); and distribution among areas and fields of engineering and science. Data trends are reported for the period 1967-1974. Findings include: science enrollment in graduate programs increased 6% between 1973 and 1974; every science area, except mathematics, showed an expansion; full-time students holding assistantships rose 4%; students receiving Federal support declined 3%; female enrollment in full-time graduate science programs increased 13%; and full-time foreign student enrollment declined 3%. Detailed statistical tables are included. (SL)

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GRADUATE SCIENCE EDUCATION
Student Support and Postdoctorals

FALL 1974

SURVEYS OF SCIENCE RESOURCES SERIES
NATIONAL SCIENCE FOUNDATION
NSF 76-313

FOREWORD

Three periods of cyclical fluctuations have marked graduate science enrollment during the past two decades, each characterising the general conditions prevailing in higher education. During the sixties, a period full of optimism, graduate science enrollment rose steadily. Demographic patterns due to high postwar birth rates also were a major factor, and Americans placed great value on advancing as far as possible in higher education. Federal support for academic research and for graduate students grew rapidly.

The year 1970 signified the first in a 4-year decline in graduate science enrollment. The favorable conditions of the sixties were reversed, with universities entering a period of financial exigencies. Federal fellowship and traineeship support fell dramatically and research support declined in constant-dollar terms. General economic recessionary conditions clouded prospective employment opportunities, including those of highly trained scientists and engineers in several fields of endeavor. Inflation placed many institutions in financial crises.

In 1974 a 2-year increase began in graduate science enrollment that represented another change in direction, even though Federal support of students continued its decline. One possible explanation is that because of unfavorable employment conditions, many recent college graduates who could not find employment decided to enter graduate school. In increasing numbers they turned to private sources, including college scholarships and their parents, for support of their graduate studies. Enrollment patterns also changed with increased emphasis being placed on civil rights legislation and programs benefiting minorities and women. This "new demand" for graduate education was not anticipated by academic administrators. It placed an added burden on many public institutions, as extra monetary support was not provided by some State governments because of stringent budgets.

Data provided through the annual Survey of Graduate Science Student Support and Postdoctorals allow researchers and those in policymaking roles to assess the effects of these shifts in enrollment and funding patterns on both graduate students and postdoctorals in science and engineering fields. The analytical report for 1974, prepared in the Division of Science Resources Studies, Charles E. Falk, Director, is the eighth in the series that began with the creation of NSF's Graduate Traineeship Program. The National Science Foundation is grateful for the cooperation of the coordinators and department chairmen who contribute to the acquisition of these annual statistics.

H. Guyford Stever
Director
National Science Foundation

June 1976

general notes

- The Survey of Graduate Science Student Support and Postdoctorals (GSSSP) has been conducted annually since fall 1972; it provides data from all Ph. D.-granting institutions in the United States, including their medical school affiliates, and covers only those master's and doctoral candidates and postdoctorals in the sciences and engineering. Throughout this report where the term "science" is used, it is understood to include engineering, and the initials "S/E" represent "science and engineering."
- The term "graduate enrollment" as used here refers to the total of all full- and part-time science students enrolled for M.S. and Ph. D. degrees; candidates for first-professional degrees, such as the M.D. and D.D.S., were not included in the survey unless they were simultaneously enrolled in advanced degree programs. Institutions granting the master's as the highest degree were not surveyed.
- The definitions used in this survey of full- and part-time graduate students differ somewhat from that of the annual survey of "Students Enrolled for Advanced Degrees," conducted by the National Center for Education Statistics (NCES) in the Department of Health, Education, and Welfare. Because of this difference in definitions, as well as in the taxonomy and overall coverage, results from the NCES survey traditionally have shown fewer full-time S/E students than are reported in the NSF survey. For a further explanation of the coverage of the two surveys, please refer to the technical notes in appendix I, p. 28.
- Information on the types and sources of support, sex, and citizenship pertain to full-time students only: similar information was not available for part-time students.
- The phrase "institutional support" refers to all direct support from the Ph. D.-granting institutions themselves or indirectly from State and local governments.
- Data for fall 1974 were returned by 1,364 master's and 6,141 doctorate departments, the largest number surveyed since the series began in 1972. Trend statistics were based on only those "matched" departments that responded to all surveys in a particular time series, such as 1971-74 or 1973-74. See technical notes for further description of trend methodology.
- Data for 1975 mentioned in this report were obtained from early enrollment estimates derived from the full-scale 1975 survey data. Final data will be available in late summer 1976.
- Details shown in statistical tables may not add to totals because of rounding.

acknowledgments

This report was prepared in the Universities and Nonprofit Institutions Studies Group by Penny D. Foster, Associate Study Director, with the assistance of Phillip Neal, Richard Bennof, and Lynne Versel. Richard M. Berry, Study Director, supervised the preparation of the report, and William L. Stewart, Head, R&D Economic Studies Section, provided guidance and review. The graduate deans who coordinated the institutional responses and their department chairmen who supplied the data deserve our special thanks for their assistance.

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[1] See note p. 27.

HIGHLIGHTS

GRADUATE ENROLLMENT AND SOURCES OF SUPPORT

- Science enrollment in graduate programs increased nearly 6 percent between 1973 and 1974, and early estimates for 1975 indicate a continuing upturn. The 1973-74 increase affected both full- and part-time enrollment and both first-year entrants and those beyond their first year.

- Every area of science showed an expansion in graduate enrollment with the exception of the mathematical sciences, where only a slight decline was registered. The life sciences sustained the highest rate of growth, 11 percent, followed by psychology, with 8 percent, and the social sciences, with 7 percent. The lowest rate of increase occurred in the physical sciences, only 1 percent.

- The 5-percent rise in full-time science enrollment between 1973 and 1974 was traced to the increase in numbers of students who were dependent on their institutions for support or on their own resources. Students receiving Federal support declined by 3 percent, reaching a level that was 41 percent below that of 1967.

- Part-time enrollment rose by 9 percent, or 7 percent higher than the 1967 base. One of the factors influencing this increase was the dependence on full-time employment to finance the increases in tuition and living costs associated with the acquisition of advanced science degrees.

- Full-time students holding research assistantships rose 4 percent in 1974, offsetting a similar decline in fellowships and traineeships. With Federal R&D obligations on the rise between fiscal year 1973 and fiscal year 1974 in both current and constant dollars, it is anticipated that the number of federally supported research assistantships will continue to rise.[1]

- The number of women enrolled full time in graduate science programs went up 13 percent between 1973 and 1974, while the number of men increased by only 3 percent. Women also comprised a larger share of the total in 1974, 24 percent, up from 19 percent in 1973.

- Between 1973 and 1974, full-time students holding U.S. citizenship increased by 6 percent while foreign students declined by 3 percent. The foreign student population represented only 16 percent of the 1974 total, a decline of 4 percentage points from their 20-percent share in 1969.

- Public institutions enrolled 74 percent of the full-time students in 1974 and 62 percent of the part-time students. In 1973, those enrolled full time accounted for almost the same percentage, 73 percent, and 59 percent of the part-time total.

POSTDOCTORALS

- Of the 16,800 postdoctorals reported by Ph. D.-granting institutions in 1974, 71 percent received Federal support, up slightly from 69 percent in 1973. Public institutions accounted for 55 percent of all postdoctorals and 60 percent of the "recent" doctoral holders, those that received their Ph. D.'s between 1970 and 1974. The total number of appointments decreased 2 percent between 1973 and 1974, due primarily to the 5-percent drop in federally supported fellowships and traineeships and the 9-percent decline in all non-Federal support. Only research associates on Federal research projects increased.

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[1] See National Science Foundation, *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1974* (NSF 76-305) (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1976).

INTRODUCTION

The statistical series on which this study is based had its origins in the data collection system based on applications for NSF traineeships during the period 1967 through 1971. Beginning in 1972, a survey program was initiated by NSF in order to continue the collection of similar information from an expanded universe of institutions and departments. Every year thereafter the survey coverage improved, so that by 1974 data were available from 7,505 departments in 355 Ph. D.-granting institutions, including their medical school affiliates.[2]

The data elements collected in this survey program are as follows: Enrollment status (full- and part-time); level of study (first-year and beyond the first); citizenship (U.S. and foreign); sex of student; control of institution (public and private); and distribution among fields of science. Data on types and sources of major support were provided for full-time students only, and postdoctoral utilization was examined by field of science and source of support.

Changes between 1973 and 1974 were calculated from data provided by 5,939 departments reporting for both years; changes for longer time spans were derived by use of an indexing method described in the technical notes.

An innovation begun in 1974 has proven so successful that plans are to repeat it on an annual basis—the Quick Response Survey was mailed to a stratified random sample of 360 departments in September 1974 to provide early estimates of total science enrollment in broad fields. The first survey results predicted a full-time enrollment increase of 4 percent after several years of decline; this prediction was borne out by the final results of the full-scale survey. Future Quick Response Surveys, including the one conducted in 1975, are being mailed to a larger sample so that further refinements and better accuracy can be obtained at the field-of-science level.

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[2] See technical notes, appendix I, for discussion of expansion in coverage.

GENERAL CHARACTERISTICS

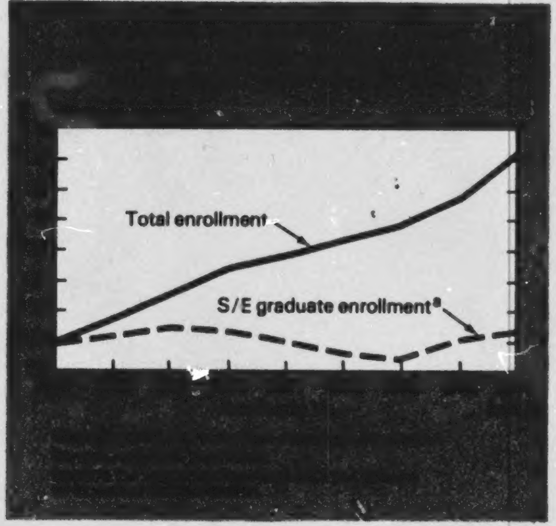
An estimated 11.3 million students were enrolled in institutions of higher education in all academic fields in fall 1975, one million more than the previous year, for a total enrollment increase of approximately 63 percent during the period 1967-75. The 10-percent increase from 1974 to 1975 represented an acceleration of the annual growth pattern in evidence over the last 9 years. This change in pace reflected the heightened perception by students in recent years of the value of academic credentials during a period of increased competition for jobs. Of the 8.4 million jobless reported in March 1975, college graduates made up only 5 percent of the total. The unemployment rate for the workers with 4 or more years of college was only 2.9 percent, compared to 9.2 percent for all persons unemployed.[3]

Opening fall enrollment in institutions of higher education: 1967-75

Academic year	Resident and extension enrollment	
	Number	Annual percent change
1967	6,963,687	——
1968	7,571,636	8.7
1969	8,066,233	6.5
1970	8,649,368	7.2
1971	9,025,032	4.3
1972	9,297,787	3.0
1973	9,694,297	4.3
1974	10,321,539	6.5
1975[1]	11,323,000	9.7

[1] Preliminary estimate, December 1975.

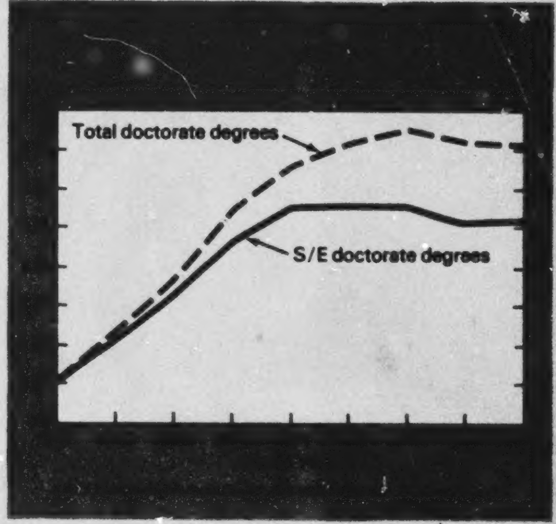
Source: National Center for Education Statistics, DHEW, Survey of Opening Fall Enrollment in Higher Education, annual series.



During 1967-74 increases in graduate enrollment in all fields closely paralleled the trend in total enrollment; however, graduate enrollment in the sciences and engineering at Ph.D.-granting institutions fluctuated markedly from the base year 1967, reaching its highest point in 1969 and its lowest in 1973. The upward swing in both 1974 and 1975 represented a return to approximately the same level as in 1970. The same factors that influenced enrollment trends at all levels of higher education apparently began to affect students pursuing graduate careers in science. The recent influx of science and engineering (S/E) students probably indicates their concerted effort nationwide to upgrade their skills by acquiring advanced degrees in science disciplines in order to compete more successfully for the dwindling number of available positions both in the public and private sectors.

Growing demand for graduate education is further indicated by results of the annual graduate enrollment survey conducted by the Council of Graduate Schools of its member institutions at both the master's and Ph. D. level. The 292 institutions responding reported an overall increase of 5.5 percent in graduate enrollment in all fields between fall 1974 and fall 1975 and a 6.4-percent increase in applications for graduate study.[4]

The number of science doctorate degrees awarded between 1967 and 1971 increased by 45 percent, and Ph. D. degrees in all fields increased 56 percent during the same time span. However, the



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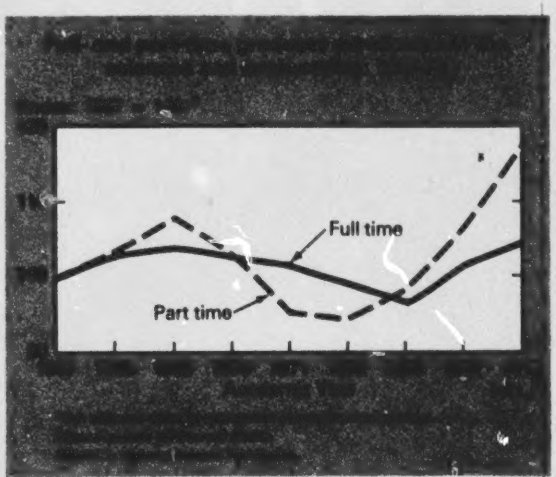
[3] "Special Labor Force Report," *Monthly Labor Review* (Feb. 1976).

[4] See Council of Graduate Schools, *The Communicator*, "CGS Communicator Special Report No. 5" (Washington, D.C., December 1975).

rate for science doctorate awards remained stable for the 1971-73 period before showing the first downturn in 1974, and the number awarded in 1975 were only slightly higher than in 1970. Doctorate recipients in 1974 reported a median of 7.3 years in total elapsed time between the receipt of the baccalaureate and the doctorate in science.[5]

Both full- and part-time science enrollment were on the rise in Ph.D.-granting institutions when compared to the prevailing levels in 1967.[6] The continuous climb in part-time enrollment that began in 1972, however, surpassed the rate of growth in full time. This apparent shift of graduate study in the sciences to a part-time basis in recent years reflects in part the increasing dependence on off-campus sources of income by students intent on acquiring advanced degrees. Also, enrollment characteristics have been changing at all levels of higher education. For instance, many adults may be continuing their education without formally acquiring degrees, and many women are probably returning to college to upgrade their skills for a better competitive advantage in the job market. A change in age level is also becoming evident. Students between 25 and 34 years old made up almost two-thirds of the part-time college population and one-sixth of the full-time students in October 1974.[7]

ment affected both first-year and advanced students and was felt in every area of science except the mathematical sciences. The largest increase in first-year students occurred in the life sciences, both in absolute and in relative terms. Over 2,700 more students entered life science fields in 1974 than in 1973, and over 500 of these chose agriculture as their major field of study and 800 entered clinical fields. This movement toward graduate work in the agricultural and biological fields was a reflection of the new value placed on conserving our natural resources and solving our national health needs, with a concurrent increase in jobs in these fields. Increased concentration of first-year students occurred also in most of the engineering disciplines, primarily chemical and civil, as well as in the physical sciences, such as chemistry, physics, and the geosciences, more evidence of the perception by students that solving national energy and pollution problems was of increasing urgency. In both psychology and the social sciences large increases in first-year students were recorded between 1973 and 1974, over 500 in the former and over 1,500 in the latter.



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[5] See National Academy of Sciences, *Summary Report, 1974 Doctorate Recipients from United States Universities* (Washington, D.C., June 1975).

[6] See National Science Foundation, *Science Resources Studies Highlights*, "Graduate Science Enrollment in Fall 1975 is Up Again for Second Straight Year" (NSF 75-335) (Washington, D.C. 20550, December 31, 1975).

[7] See Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, No. 286 (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, Nov. 1975).

Graduate enrollment, by area of science and level of study: 1973-74 (Percent change)

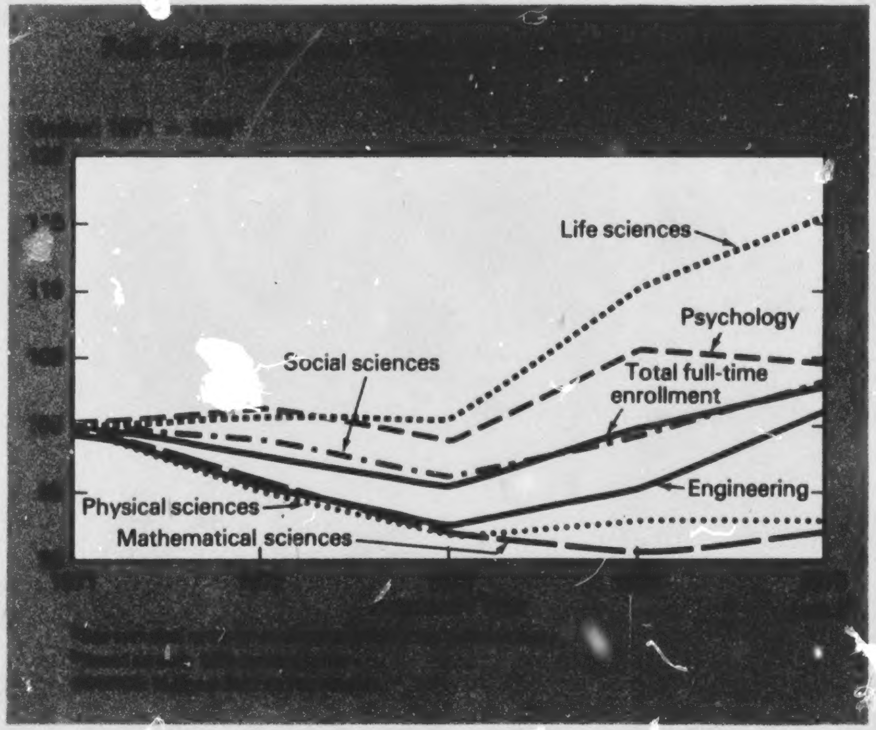
Area and field of science	Total graduate enrollment	First year	Beyond first year
Total, all areas	5.5	8.7	3.8
Engineering	3.3	2.7	3.8
Chemical	2.9	7.9	(1)
Civil	11.1	5.4	15.6
Electrical	4.9	2.4	7.2
Industrial	.7	-3.9	4.7
Mechanical	4.7	3.4	5.7
All other	-3.0	2.3	-6.2
Physical sciences	1.4	8.2	-1.0
Chemistry	-.3	7.7	-3.2
Geosciences	9.3	9.8	9.1
Physics	-.7	6.7	-3.0
All other	2.0	11.2	-1.4
Mathematical sciences	-.3	-.4	-.3
Applied mathematics	3.8	-4.3	9.8
Mathematics	-3.0	-.3	-4.6
Statistics	6.7	13.6	3.5
Life sciences	11.3	18.8	7.5
Agriculture	12.6	20.7	8.3
Biochemistry	6.7	21.8	1.6
Biology	6.8	9.0	5.7
Zoology	4.0	19.8	-1.7
All other	13.7	20.3	10.2
Psychology	8.0	11.8	6.7
Social sciences	6.6	11.2	4.3
Anthropology	7.1	3.5	8.4
Economics	3.0	6.2	1.4
Political science	2.2	.8	3.1
Sociology	4.9	7.5	3.8
All other	18.1	30.9	7.2

[1] Less than 0.05-percent change.

Note: Based on full- and part-time enrollment in 5,939 graduate departments reporting in 1973 and 1974.

Source: National Science Foundation.

The 4-year downturn in full-time S/E enrollment discussed earlier was reversed beginning in 1973, and early results from the 1975 survey show that graduate enrollment increased during 1973-75 in virtually all areas of science. The most dramatic increase occurred in the life sciences, while the physical and mathematical sciences remained fairly steady in recent years, although at much below their 1971 levels. The emergence of the life sciences as the most popular discipline for full-time study had its roots in the inability of medical schools to accept the increasing numbers of qualified applicants and their subsequent shift to graduate study in biological and medical fields. Increases in graduate enrollment in agricultural and natural resources fields parallels the interests expressed by freshmen entering college in fall 1974. For these students, agricultural, biological, and other technical fields have been increasingly selected as major fields of study, while engineering and mathematical fields have declined.[8]



The 1973-74 increase in both full- and part-time enrollment, up 5 percent and 9 percent, respectively, occurred in virtually every area of science. The growth of part-time enrollment represented a continuance of the trend that began several years earlier. The highest rates of increase in part-time study occurred in the life and social sciences, nearly five times the rate of growth of engineering or the physical and mathematical sciences.

Graduate enrollment, by area of science and enrollment status: 1973-74
(Percent change)

Area of science	Total	Full time	Part time
Total, all areas	5.5	4.6	8.6
Engineering	3.3	3.3	3.3
Physical sciences	1.4	1.2	3.1
Mathematical sciences	-.3	-1.4	2.1
Life sciences	11.3	10.4	16.8
Psychology	8.0	6.7	14.1
Social sciences	6.6	3.1	17.1

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation

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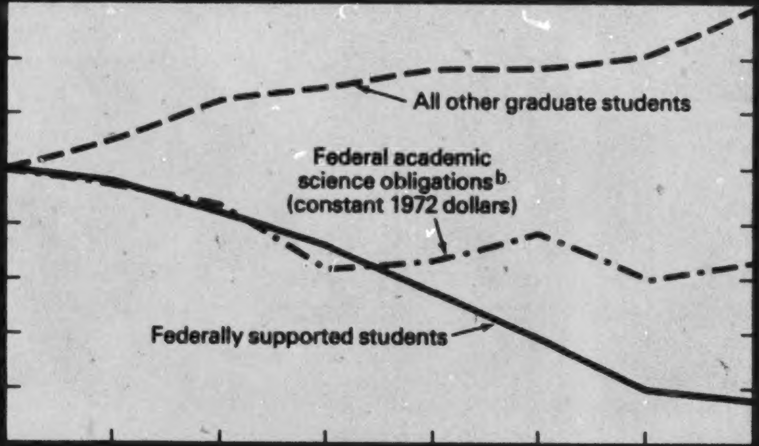
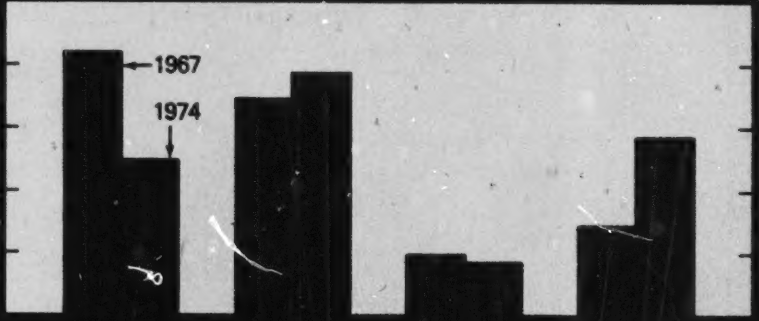
[8] Alexander W. Astin, Margo R. King, John M. Light, and Gerald T. Richardson. *The American Freshman: National Norms for Fall 1974.* Los Angeles: Graduate School of Education, Cooperative Institutional Research Program, American Council on Education and Univ. of California, 1975.

Long-Term Trends, 1967-74[9]

Total full-time enrollment peaked in 1969, dropped for 4 successive years, and nearly returned to its 1967 position by 1974, while the number of federally supported full-time students declined continuously. The trend in Federal obligations for academic science in terms of a normalized index was compared to this dropoff for the same period. In constant-dollar terms, the obligations for fiscal year 1974 were at about the same level as in fiscal year 1971 and were approximately 17 percent below the base year 1967.[10] This 7-year drop in Federal academic science obligations to universities and colleges paralleled the downturn in federally supported graduate students, although the latter rate of decline was more dramatic. By 1974 the number of full-time students receiving Federal support was 41 percent lower than 1967. During this same period, support from the institutions, including State and local government sources, as well as from the students themselves and their families, rose considerably. The overall rise in nonfederally supported students from 1967 to 1974 was 31 percent.





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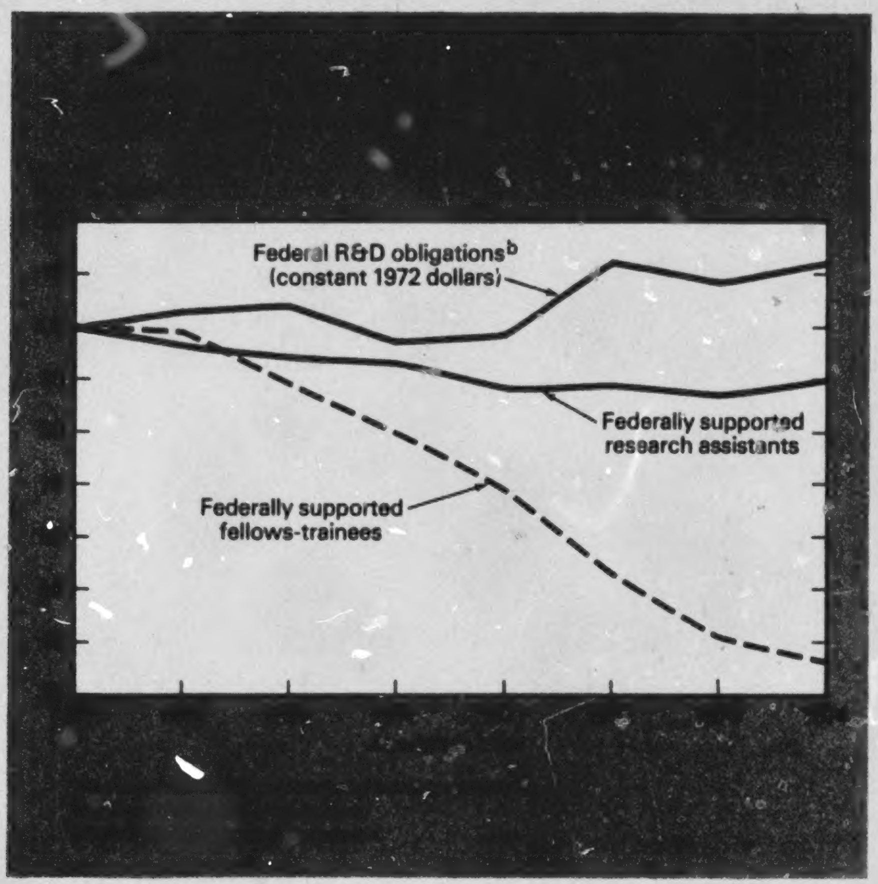
[9] See technical notes, appendix I, p. 39, for description of indexing methodology.

[10] In the absence of a reliable R&D cost index, the gross national product (GNP) implicit price deflator was used to convert current dollars to constant dollars. The GNP deflator includes the effects of the price changes of all goods and services in the economy and, therefore, can only indicate approximate changes in costs of inputs specifically related to R&D performance.

terms of constant dollars between 1967 and 1974, the funds obligated specifically for research and development rose during this period. The 13-percent increase in R&D funds, however, failed to strengthen the number of research assistants and fellows-trainees receiving Federal aid during the same period. In fact, the number of federally supported research assistants dropped steadily from 1967 to 1971, and then remained fairly stable through 1974, but at 10 percent below their 1967 position. Fellows-trainees receiving Federal assistance also dropped continuously, for a total decline of 63 percent between 1967 and 1974. This shift away from the utilization of full-time students on federally supported R&D projects occurred at the same time when there was accelerated participation of postdoctorals, which will be discussed later in this section.



SOURCE OF MAJOR SUPPORT

In the most recent survey period, 1973-74, the full-time graduate science enrollment increase of nearly 5 percent was attributed primarily to the addition of over 5,100 self-supported students and 2,100 institutionally supported students. In spite of the escalation of tuition and living costs, there were more self-supported students in 1974 than in 1973 (over 14 percent), with the life sciences and psychology showing the highest rates of increase. The 3-percent drop in students supported through Federal Government programs was distributed over every area of science but one—the life sciences showed a 6-percent rise in federally supported students, primarily because of increased support by the National Institutes of Health (NIH). In fact, NIH supported 14 percent more students in 1974 than in 1973. Every area of science showed gains in NIH support except the mathematical sciences, where there were only 100 students, or less than 1 percent of the total number depending on NIH as their major source of support. Meanwhile, the National Science Foundation (NSF) reduced the number of students it supported by 11 percent, thereby affecting every area of science; the mathematical sciences showed the largest drop, both in absolute and in relative terms.

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[11] Based on 5,939 graduate departments reporting in both 1973 and 1974. See technical notes, appendix I, p. 28, for explanation of the use of trend data from matched departments.

Full-time graduate enrollment, by source of major support and area of science: 1973-74
(Percent change)

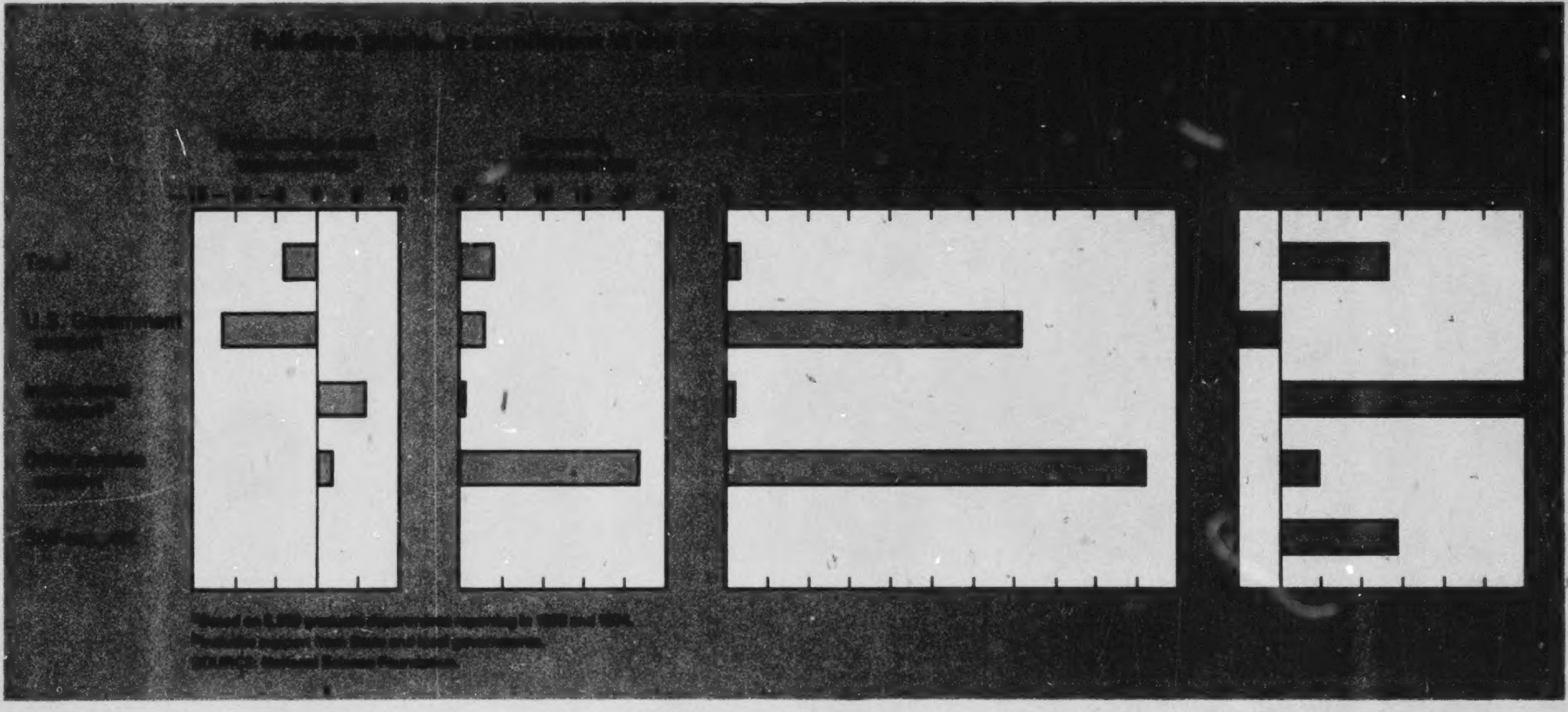
Source of major support	Total	Engineering	Physical sciences	Mathematical sciences	Life sciences	Psychology	Social sciences
Total	4.6	3.3	1.2	-1.4	10.4	6.7	3.1
U.S. Government	-3.3	-7.0	-2.0	-21.4	6.1	-2.9	-15.0
NIH	14.1	1.5	17.1	-17.6	13.2	24.7	21.7
NSF	-11.2	-7.5	-4.4	-35.2	-16.2	-27.7	-18.0
All other	-7.5	-7.5	-4.2	-8.5	1.5	-10.4	-20.1
Institutional support	3.3	3.3	-1.5	3.2	6.1	4.9	4.7
Other outside support	8.6	9.0	13.3	-12.1	15.2	-3.0	6.8
Self-support	14.4	15.2	18.1	.9	22.8	21.6	7.7

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation.

student's perception that a graduate degree will increase the chances of successfully entering the employment market. Also, a graduate degree is required now for an applicant to be considered for employment in some scientific disiplines.

TYPE OF MAJOR SUPPORT

Of the four mechanisms of full-time graduate student support itemized on the questionnaire, only fellowships and traineeships declined between 1973 and 1974.[12] The 4-percent drop was attributed primarily to the net loss of nearly 1,900 supported fellows-trainees declined, Federal obligations for fellowships, traineeships, and training grants for graduate training or study in the sciences or engineering rose 14 percent to $327 million between 1973 and 1974, the first such increase in this category since data were first gathered in 1971.[13] The largest increase was reported by NIH, from $130 to $170 million, reflecting the release of impounded 1973 funds. Most of the impact on the institutions from allocation of Federal funds is likely to be felt by graduate institutions beginning in 1975 due to the time lag between obligations which reflect *planned* expenditures and *actual* expenditures.



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[12] See appendix IV, p. 61, for definition of each type of support.

[13] See National Science Foundation, *Federal Support to Universities, Colleges, and Selected Nonprofit Institutions, Fiscal Year 1974* (NSF 76-305), op. cit.

Research assistantships rose in 1974, offsetting the reduction in fellowships and traineeships. The 4-percent increase was shared by every Federal agency except the National Science Foundation, which reduced its support by 230 students, or 3 percent. Since the number of research assistantships available to graduate students is directly affected by the increasing level of R&D funding by both public and private sources, it is anticipated that the number of students supported by this mechanism will continue to increase for at least another year.

Recent increases in undergraduate science enrollment have created new demands on institutional teaching staffs; thus more graduate teaching assistants were needed in 1974 than in 1973. The teaching assistantship, while a part of a student's graduate training, also provides more flexibility to the university in allocating its teaching resources. Rather than adding permanent faculty positions during a period of financial strain, universities can provide more teaching assistants to accommodate increases in enrollment. The institutions surveyed supported 98 percent of all teaching assistantships in 1974, 1 percent more than in 1973.

LEVEL OF STUDY

The 10-percent upturn between 1973 and 1974 in first-year entrants into graduate science programs is the first increase recorded in this statistical series since 1969. Over 5,000 new full-time students entered graduate institutions in 1974 and utilized every mechanism of support to an increasing degree in order to do so.

Life science graduate programs attracted 21 percent more first-year entrants in 1974 than in 1973, the highest rate of change of all the sciences. These new entrants into the life sciences may produce some severe utilization problems in the future unless university research programs in these fields receive adequate funding in the years to come. A recent study for the President's Biomedical Research Panel showed that total expenditures by 143 universities for biomedical and behavioral research rose 9 percent between fiscal year 1972 and fiscal year 1974 in "real dollar" terms.[14] The Federal portion of these expenditures rose 8 percent during the same period. The subsequent downturn in the economy, however, was not reflected in the data base used in the study, and it concludes that both private and public universities would probably show erosion in total expenditure levels after fiscal year 1974. The moderate revenue increases in biomedical and behavioral sciences were surpassed by the relatively strong rates of growth in graduate enrollment in these fields.

The life sciences and psychology each attracted 5 percent more students who were beyond their first year of graduate work, while the mathematical and physical sciences lost 3 percent and 1 percent, respectively.

Full-time graduate enrollment, by area of science and level of study: 1973-74 (Percent change)

Area of science	Total	First year	Beyond first year
Total, all areas	4.6	9.8	1.9
Engineering	3.3	5.4	1.7
Physical sciences	1.2	7.3	-1.0
Mathematical sciences	-1.4	2.6	-3.5
Life sciences	10.4	20.8	5.3
Psychology	6.7	10.4	5.3
Social sciences	3.1	6.6	1.2

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation.

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[14] Lyle H. Lanier and Ivars Zageris, *A Study of Financial and Educational Trends in Research Universities and Relation to Federal Funding of Health-Related Research: 1964-1974.* Washington, D.C.: American Council on Education, Mar. 1976.

on "other" types, primarily self-support, and this group increased at the highest rate—13 percent between 1973 and 1974. The total number of advanced students (beyond their first year) also increased, but at a slower rate, only 2 percent more than in 1973, with fellowships and traineeships showing the only decline, 11 percent. Research assistants beyond their first year rose by 3 percent, and teaching assistants remained virtually the same as the previous year.

Institutions were classified into four categories for analysis in this report: (1) The "first 20", those selected by the largest number of recipients of NSF fellowships during the period 1968-74; (2) "developing" institutions, those granting at least one science Ph. D. for the first time in any year since academic year 1960-61; (3) medical schools; and (4) "intermediate," representing all of the remaining Ph. D.-granting institutions.[15] Because medical schools accounted for only 10,700 full-time students, or 7 percent of full-time enrollment in departments reporting in both 1973 and 1974, their data have not been included on the accompanying chart.

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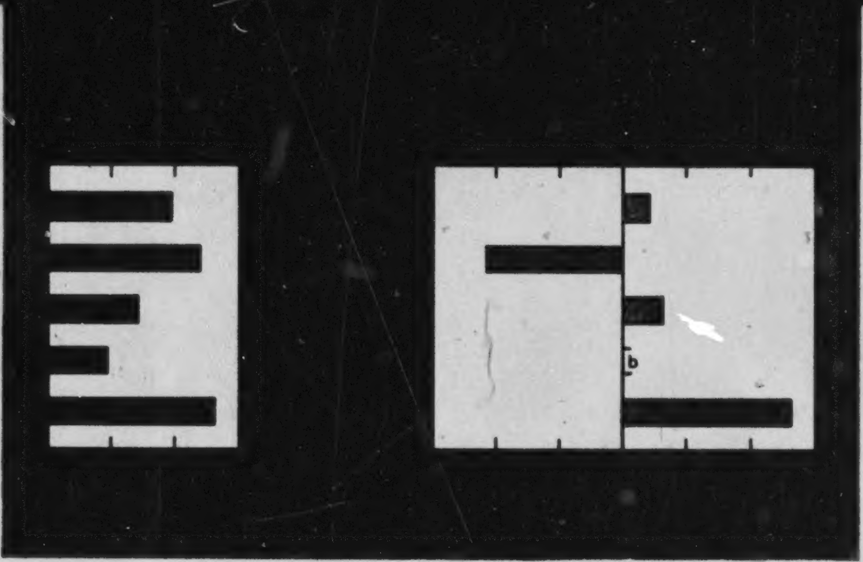
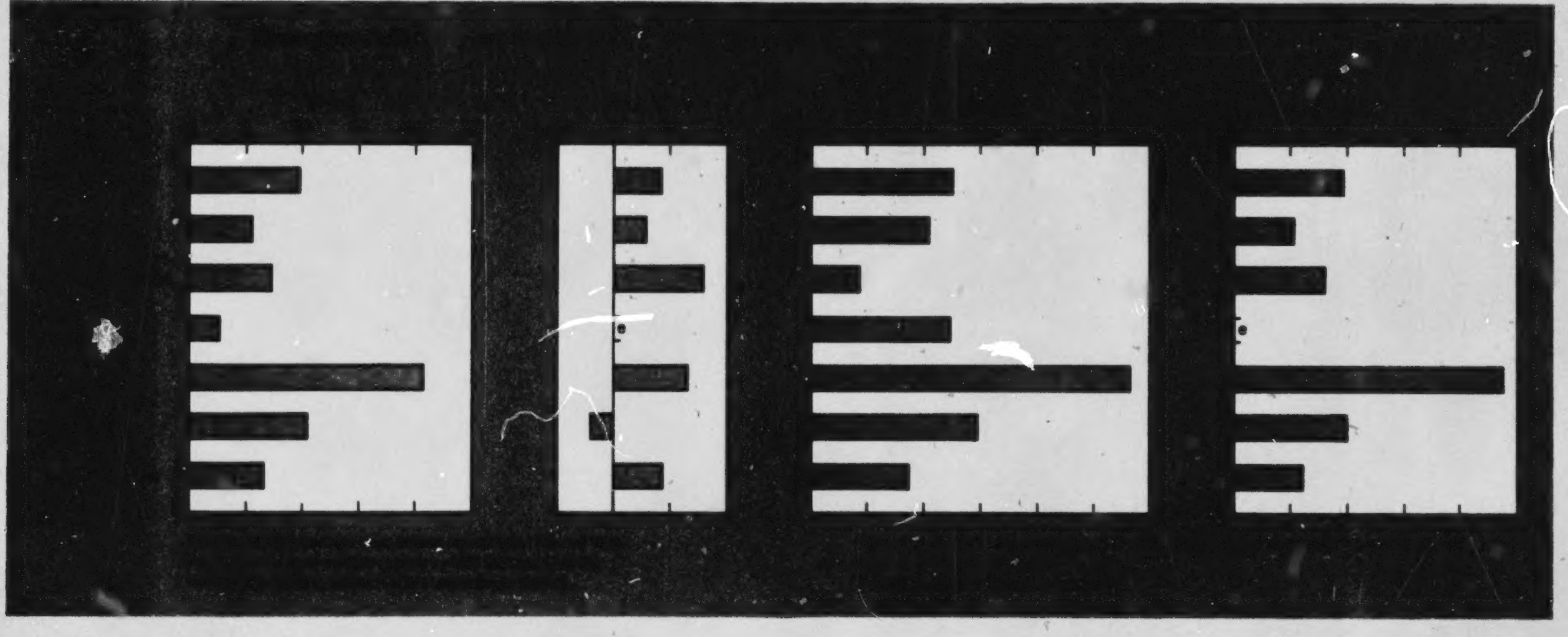
[15] See appendix II for names of the institutions in each category.





increased between 1973 and 1974. "Developing" schools experienced the highest rate of increase, 13 percent, and every area of science in these institutions showed gains in first-year enrollment, especially the life sciences. In the 20 institutions selected most often by NSF fellows, first-year entrants were up in every area except psychology.

CITIZENSHIP

In 1969 foreign students represented 20 percent of all full-time graduate students in Ph. D.-granting institutions; by 1974, only 16 percent. Between 1973 and 1974, the number of foreign graduate students declined by 3 percent, and every area of science was affected, while the number of U.S. citizens increased by 6 percent.[16] Foreign students in psychology declined at the highest rate of all areas of science but accounted for the least number of full-time students, only 3 percent in 1974.

Full-time graduate enrollment, by area of science and citizenship: 1973-74
(Percent change)

Area of science	Total	U.S. citizens	Foreign students
Total, all areas	4.6	6.4	-3.1
Engineering	3.3	5.8	-1.4
Physical sciences	1.2	2.9	-5.9
Mathematical sciences	-1.4	-.7	-4.2
Life sciences	10.4	12.4	-1.2
Psychology	6.7	9.0	-38.2
Social sciences	3.1	3.7	-.1

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation.

Participation by women in graduate science programs expanded considerably in 1974. The number of women studying full time in advanced science programs increased 13 percent between 1973 and 1974, while the number of men rose by only 3 percent. This increase in women's access to graduate work in science occurred at the same time that emphasis was placed on affirmative action programs and civil rights legislation designed to remove barriers to equal opportunity in both education and in employment.

Opportunities for employment in the academic sector improved for women between January 1974 and 1975.[17] Women employed full time as scientists and engineers at all universities and colleges increased by 6 percent, while the employment of men increased by only 2 percent. However, women made up only 15 percent of the total number of employed scientists and engineers at all levels in the academic sector in 1975, and this proportion was the same as in 1974.

The unemployment rate of all scientists and engineers in 1974 was only 1.0 percent, but women sustained a slightly higher rate than did men, 1.8 percent compared with 0.9 percent.[18] In the physical sciences and psychology, the unemployment rate for women was four times that of men, and, in virtually every other field, the rate was slightly higher for women than for men. Although the employment picture for all scientists and engineers was relatively bright in 1974, the number of women in the graduate science pool may be rising faster than the number of jobs in some disciplines.

Full-time graduate enrollment, by area of science and sex of student: 1973-74
(Percent change)

Area of science	Total	Men	Women
Total, all areas	4.6	2.6	12.7
Engineering	3.3	2.1	43.0
Physical sciences	1.2	.5	7.3
Mathematical sciences	-1.4	-1.3	[illegible]
Life sciences	10.4	7.7	18.9
Psychology	6.7	2.4	14.1
Social sciences	3.1	1.3	7.8

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation.

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[16] Because of the diminishing role of foreign students in S/E graduate programs, data on the types and sources of support utilized were not collected in 1974.

[17] See National Science Foundation, *Manpower Resources for Scientific Activities at Universities and Colleges, January 1975* (NSF 76-311) (Washington, D.C. 20402; Supt. of Documents, U.S. Government Printing Office, 1976).

[18] Based on preliminary findings from the National Science Foundation's Manpower Characteristics System.

level increased 22 percent between 1973 and 1974, compared to 8 percent for men. Since the median time lapse between the receipt of the baccalaureate and the doctorate science degree is the same for both men and women, 7.3 years, or 5.6 years in total registered time in a university, the number of doctorates awarded to women in S/E fields can be expected to continue to rise at an increasing rate. In fact, between 1967 and 1974 the number of science doctorates awarded annually to women increased by 138 percent and for 1973-74, by 6 percent. The number awarded annually to men increased by only 32 percent from 1967 to 1974, and actually decreased 5 percent in the last year.[19]

In every area of science, the proportion of women graduate students has risen over 1973, with the social sciences showing the largest proportional increase. Although there was a drop in the total number of federally supported students between 1973 and 1974, the percentage of federally supported women increased. Both sexes received smaller shares of institutional aid in 1974 when compared with 1973, concurrent with the increase in self-supported men and women.

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[19] See National Academy of Sciences, *Summary Report, 1974 Doctorate Recipients from United States Universities*, special tabulations, *op. cit.*

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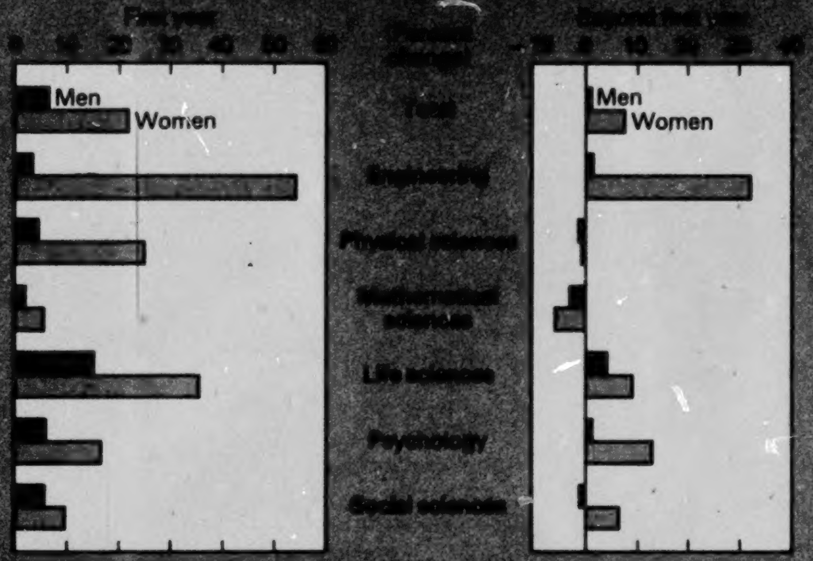

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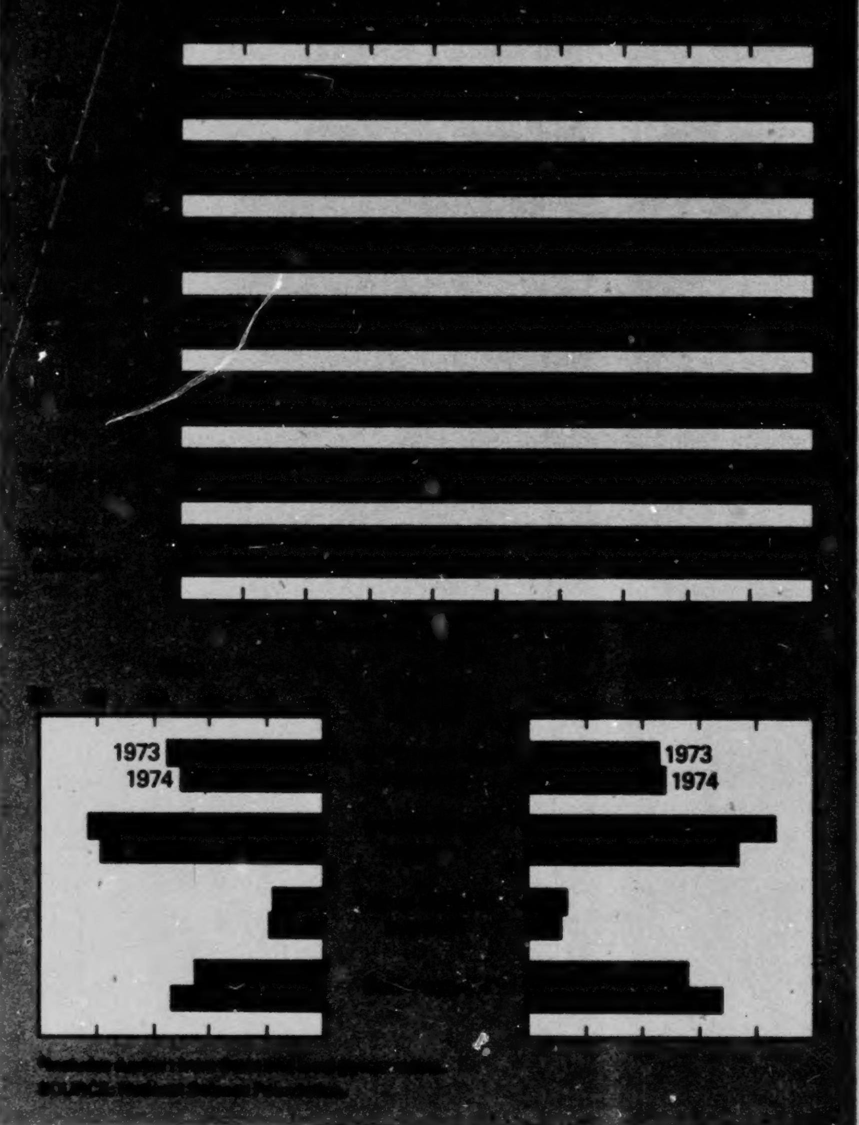

Full-time graduate students enrolled in master's and Ph. D. programs in the 104 medical schools surveyed separately in 1974 represented only 7 percent of all full-time students in 1974, or 13,200 of the 195,200 reported. Of these, only 7,000, or only 53 percent, were accounted for in matched departments reporting in the 1971-74 time series.[20] Of the 1,900 part-time students in medical schools, only 800 were accounted for in the matched departments, or 41 percent. Because of such low representation, only data on the full-time students were analyzed. Graduate students in the clinical sciences were also underreported in this matched group because of the expansion in survey coverage that occurred during these 4 years. Future trend analyses will be based on a more representative number of medical school departments than is presently possible because the size of the universe will be stabilized.

The record number of life science graduate students enrolled in both medical and graduate schools was due in part to the heightened interest in solving our national health care and environmental needs. Since only one in every three applicants was accepted into M.D. programs in medical schools in 1973 and 1974, many of these students entered graduate school in biomedical fields closely allied to their prior training while waiting to be accepted. M.D. enrollment increased 57 percent from 1967 to 1974 at an average annual rate of 6.6 percent. The highest rate of increase occurred in 1972, 8.9 percent; by 1974, the rate had dropped slightly to 6.3 percent. The peak rate of increase for first-year entrants into medical school also occurred in 1972, 11.0 percent, and in the following years fell below its 8-year average of 6.7 percent.

Medical school applicants and M.D. enrollment: 1967-74

Academic year	Medical school applicants	Annual percent change	Applicants/acceptance ratio	Total M.D. enrollment	Annual percent change	First-year M.D. enrollment	Annual percent change
1967-68	18,724	2.6	1.9	34,538	3.3	9,479	5.7
1968-69	21,117	12.8	2.1	35,833	3.7	9,863	4.1
1969-70	24,465	15.9	2.3	37,669	5.1	10,401	5.5
1970-71	24,987	2.1	2.2	40,487	7.5	11,348	9.1
1971-72	29,172	16.7	2.4	43,650	7.8	12,361	8.9
1972-73	36,135	23.9	2.6	47,546	8.9	13,726	11.0
1973-74	40,506	12.1	2.8	50,886	7.0	14,185	3.3
1974-75	42,624	5.2	2.8	54,074	6.3	14,963	5.5

Source: *Journal of American Medical Association*, 75th Annual Report, "Medical Education in the United States, 1974-1975," Supplement, Vol. 234, 1975.

In all medical school departments reporting throughout the 1971-74 time series, increases were reported in every source of support of full-time students. Federally supported students increased by 7 percent between 1973 and 1974, with most of this growth attributed to the release of impounded funds for NIH training grants. Students receiving financial aid from the institutions themselves, including State and local governments, increased by 12 percent, only one-half the rate of increase observed the previous year. Students dependent on all other sources, including self-support, rose by 6 percent. The rate of increase in the number of graduate students between 1973 and 1974 was only slightly higher for men than for women.

Full-time graduate enrollment in medical schools, by level of study: 1973-74[1]
(Percent change)

Item	Total	First year	Beyond first year
Total	7.8	14.2	5.1
Source of major support:			
U.S. Government	6.5	73.9	-4.0
Institutional support[2]	11.6	2.3	17.0
Other outside support	5.9	-5.0	11.2
Self-support	5.5	-6.4	20.4
Type of major support:			
Fellowships and traineeships	4.5	44.1	-4.5
Research assistantships ...	10.4	13.7	9.5
Teaching assistantships ...	11.3	.3	16.5
"Other" types of support ..	10.9	-2.4	26.0
Sex of student:			
Men	7.9	13.2	5.9
Women	7.4	16.5	3.0

[1] Based on graduate departments reporting in the 1971-74 time series.
[2] Includes support from State and local governments.
Source: National Science Foundation.

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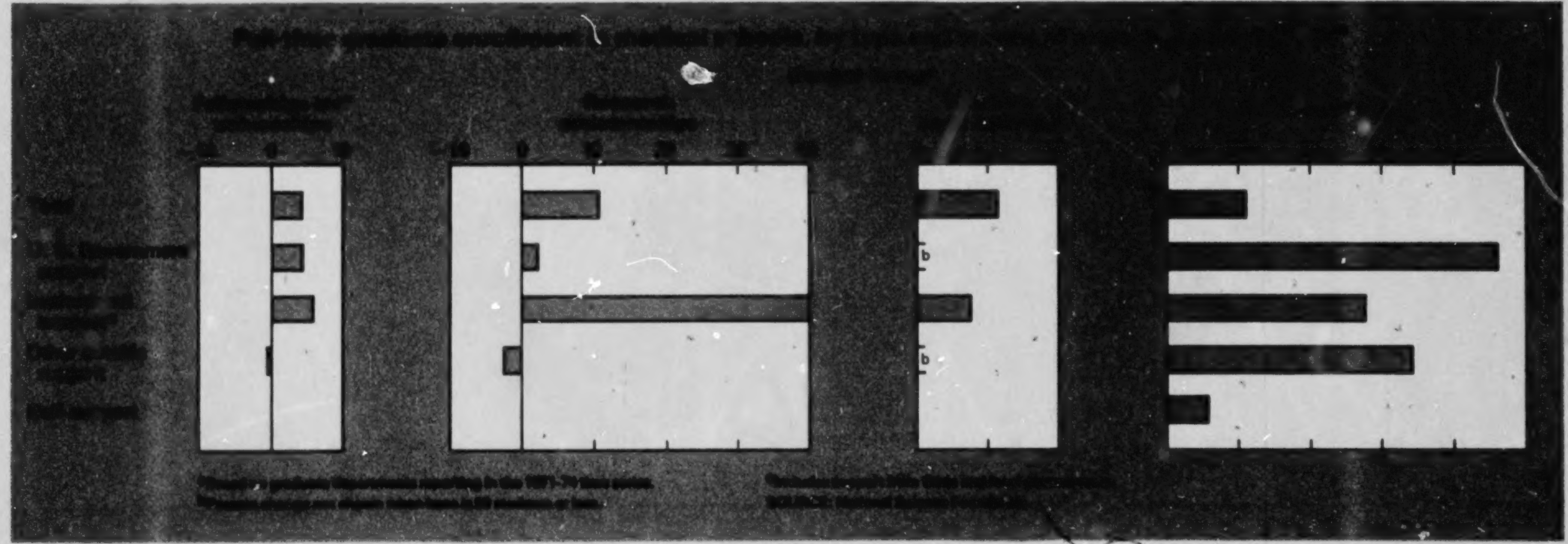
[20] Detailed statistics on medical school departments were not available in the 1973-74 time series.

The number of students on fellowships and traineeships rose 5 percent, teaching and assistantships and "other" types, primarily self-support, went up by 11 percent each, and research assistantships by 10 percent. The percentage gain in institutional support affected students utilizing all four of these mechanisms.



Graduate Enrollment

The 265,800 graduate S/E students that were enrolled in the 355 doctorate-granting institutions surveyed in 1974 represented slightly more than one-fifth of the 1.2 million graduate students enrolled in all academic fields.[21] Within the surveyed institutions, 83 percent of the graduate students were enrolled in doctorate-level departments, nearly three-fourths of the total were full-time students, and 70 percent attended public institutions. Approximately three-fifths of the students were beyond their first year of study.

Of the 221,300 students enrolled in doctorate-level programs, 69 percent attended publicly controlled institutions, where there was a heavy concentration of full-time students (80 percent). In the privately controlled institutions, 69 percent of the doctorate-level students attended on a full-time basis.

Only 17 percent, or 44,500, of the students enrolled in Ph.D.-granting institutions were in master's programs, 78 percent of whom were in training in

Characteristics of graduate enrollment in the sciences and engineering, by control of institution and level of department: 1974

Item	Total		Level of department					
			Master's			Doctorate		
	Number	Percent distribution	Number	Percent distribution	Percent of total	Number	Percent distribution	Percent of total
Total	265,760	100.0	44,457	100.0	16.7	221,303	100.0	83.3
Enrollment status:								
Full time	195,196	73.4	26,051	58.6	13.3	169,145	76.4	86.7
Part time	70,564	26.6	18,406	41.4	26.1	52,158	23.6	73.9
Level of study:								
First year	101,813	38.3	23,884	53.7	23.5	77,929	35.2	76.5
Beyond first year	163,947	61.7	20,573	46.3	12.5	143,374	64.8	87.5
Public control, total	187,159	70.4	34,455	77.5	18.4	152,704	69.0	81.6
Enrollment status:								
Full time	143,548	76.7	21,436	62.2	14.9	122,112	80.0	85.1
Part time	43,611	23.3	13,019	37.8	29.9	30,592	20.0	70.1
Level of study:								
First year	72,147	38.5	18,479	53.6	25.6	53,668	35.1	74.4
Beyond first year	115,012	61.5	15,976	46.4	13.9	99,036	64.9	86.1
Private control, total	78,601	29.6	10,002	22.5	12.7	68,599	31.0	87.3
Enrollment status:								
Full time	51,648	65.7	4,615	46.1	8.9	47,033	68.6	91.1
Part time	26,953	34.3	5,387	53.9	20.0	21,566	31.4	80.0
Level of study:								
First year	29,666	37.7	5,405	54.0	18.2	24,261	35.4	81.8
Beyond first year	48,935	62.3	4,597	46.0	9.4	44,338	64.6	90.6

Source: National Science Foundation.

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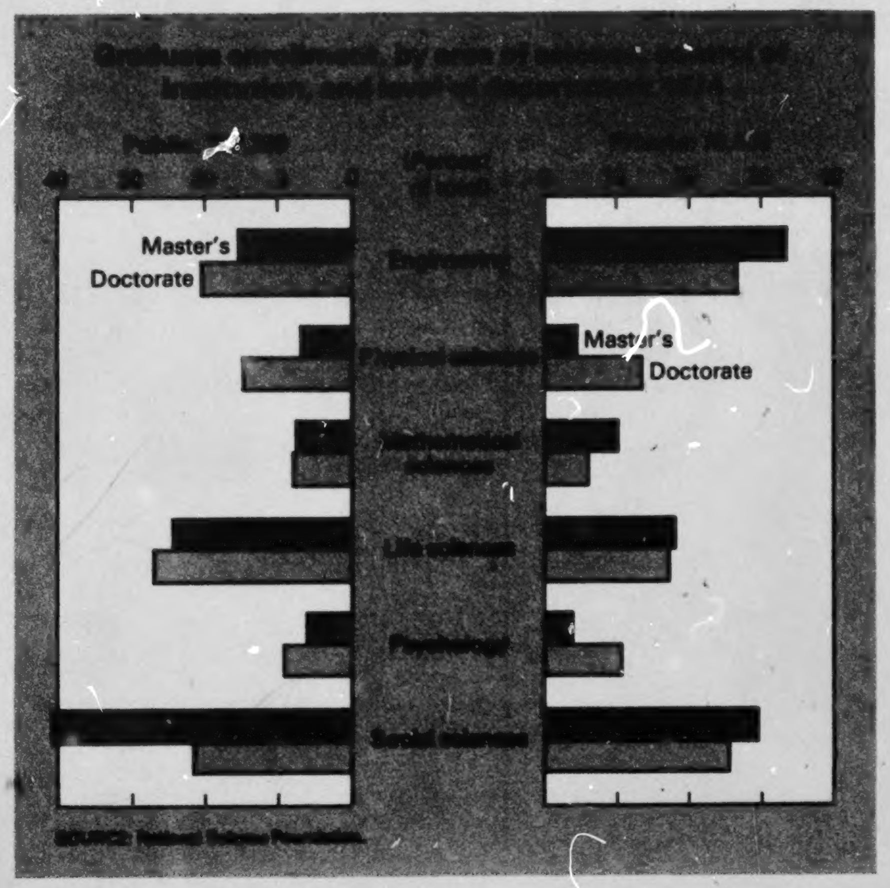
[21] See Department of Health, Education, and Welfare, National Center for Education Statistics, *Opening Fall Enrollment in Higher Education*, annual series. (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office.)

public institutions, while in private institutions, only 46 percent were so enrolled.

The proportion of students in their first year of study was virtually the same in both public and private institutions. However, 35 percent of the students in doctorate departments were in their first year, compared with 54 percent of master's program enrollees.

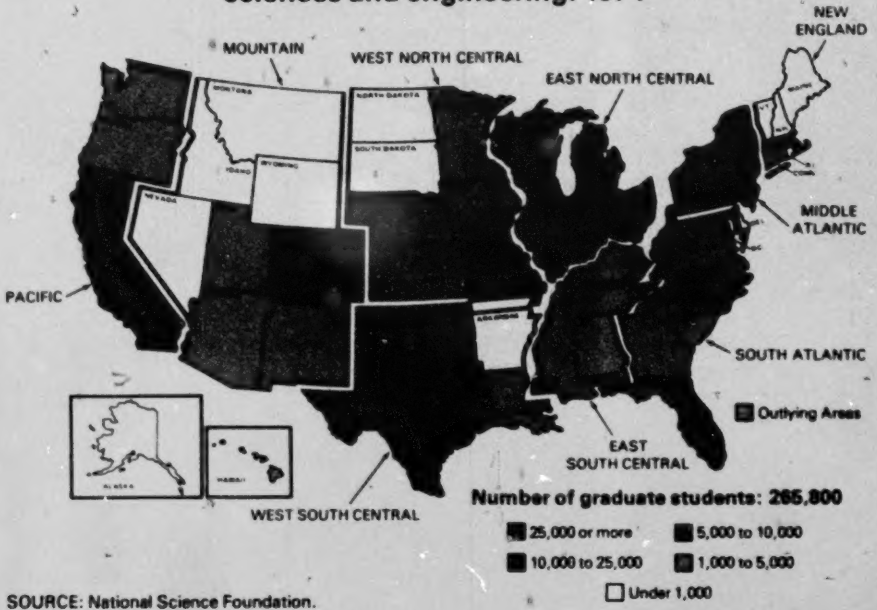
Over one-fourth of the 187,200 graduate students in public institutions were enrolled in fields within the life sciences and another one-fourth were in the social sciences. In private institutions, enrollment was more concentrated in engineering, and the social sciences were also ranked next. In institutions under public control, doctorate-level enrollment was proportionately higher than master's level enrollment in every field except the social sciences. In contrast, private institution enrollment was proportionately higher in doctorate-level departments in only two areas: the physical sciences and psychology.



The East North Central division led the Nation with graduate science enrollment of 52,600, or 20 percent of the total; in 1973, this division ranked second to the Middle Atlantic States. Two States together, New York with 30,000 and California with 28,400, drew over one-fifth of the total graduate enrollment in science and engineering in the United States in 1974, with 11 percent each, about the same relative rank as in 1973. Texas with 14,700 ranked third, and Massachusetts and Illinois vied for fourth place, with 13,500 and 13,400, respectively; Alaska was ranked last, with only 200 graduate students.

The Pacific division enrolled 88 percent of its graduate students in doctorate programs, the highest percentage of all the divisions. In the outlying areas, where the University of Puerto Rico and its medical campus accounted for all graduate science enrollment, only 10 percent of the total were enrolled in doctorate programs. The Pacific division also enrolled the highest proportion of its students on a full-time basis, 82 percent, and the Mountain States were next in order with 79 percent. In the Middle Atlantic States only 59 percent of graduate science enrollment was on a full-time schedule.

Geographic distribution of graduate enrollment in the sciences and engineering: 1974

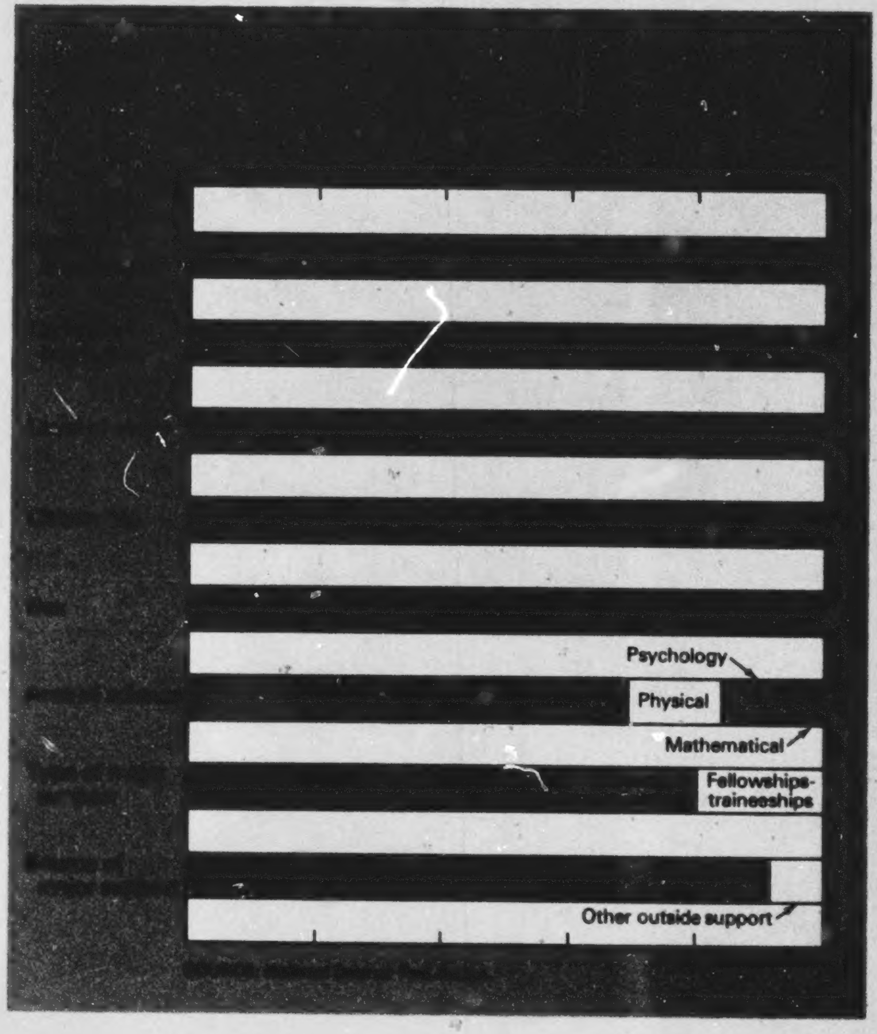

NEW ENGLAND
MOUNTAIN
WEST NORTH CENTRAL
EAST NORTH CENTRAL
MIDDLE ATLANTIC
PACIFIC
SOUTH ATLANTIC
EAST SOUTH CENTRAL
WEST SOUTH CENTRAL
Outlying Areas
Number of graduate students: 265,800
25,000 or more
5,000 to 10,000
10,000 to 25,000
1,000 to 5,000
Under 1,000

SOURCE: National Science Foundation.

Full-Time Graduate Students

The general characteristics of full-time graduate students were approximately the same in 1974 as in prior years:

- Almost 87 percent were enrolled in doctorate-level departments.
- Over three-fifths were enrolled beyond their first year of study.
- A large majority, 84 percent, were U.S. citizens.
- Men outnumbered women by four to one.
- More full-time students were enrolled in the life sciences than in any other discipline.
- The institutions themselves, and State and local governments, provided support to the largest numbers of full-time students.
- The most widely used mechanism of support, "other" types, made up primarily of self-supported students, was utilized by 36 percent.



SOURCE OF MAJOR SUPPORT

During most of the sixties, the Federal Government was the dominant source of support of graduate S/E students. In the early seventies, more of the burden for supporting graduate science education has been assumed by the students themselves, their own academic institutions, and by State and local governments. A shift to self-support as the second most utilized source of funds represented a significant change from 1973, when Federal support ranked second. According to a study conducted by the National Board on Graduate Education, this continuing trend away from Federal involvement in direct student support reflects changes in priorities of differing Administrations and the Congress, as well as changes in public attitudes toward science education in general.[22]

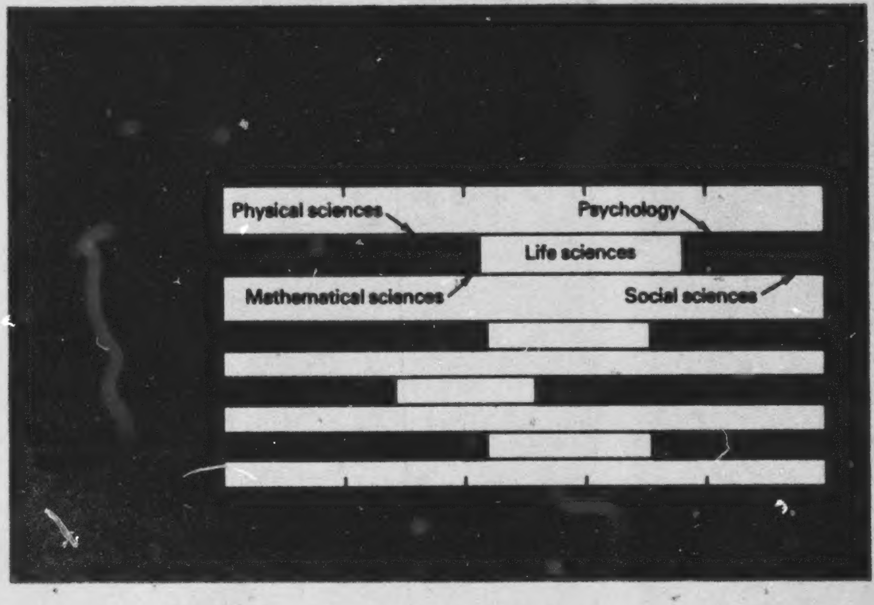
Full-time graduate enrollment in the sciences and engineering, by source of major support and control of institution: 1974

Source of major support	Total		Public		Private	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total	195,196	100.0	143,548	100.0	51,648	100.0
U.S. Government	48,012	24.6	33,445	23.3	14,567	28.2
Institutional support[1]	75,516	38.7	58,439	40.7	17,077	33.1
Other outside support	16,635	8.5	11,411	7.9	5,224	10.1
Self-support	55,033	28.2	40,253	28.0	14,780	28.6

[1] Includes support from State and local governments.
Source: National Science Foundation.

In both public and private institutions, a higher proportion of students relied upon institutional support than on any other major source, although the proportion in private institutions was lower than in public ones. The number of federally supported students was proportionately higher in institutions under private control, and the proportion of self-supported students was about the same for both groups.

Students receiving institutional support in 1974 were fairly evenly distributed among the life, physical, and social sciences, while federally supported students were concentrated in engineering and the life sciences. Self-supported students chose the social sciences.



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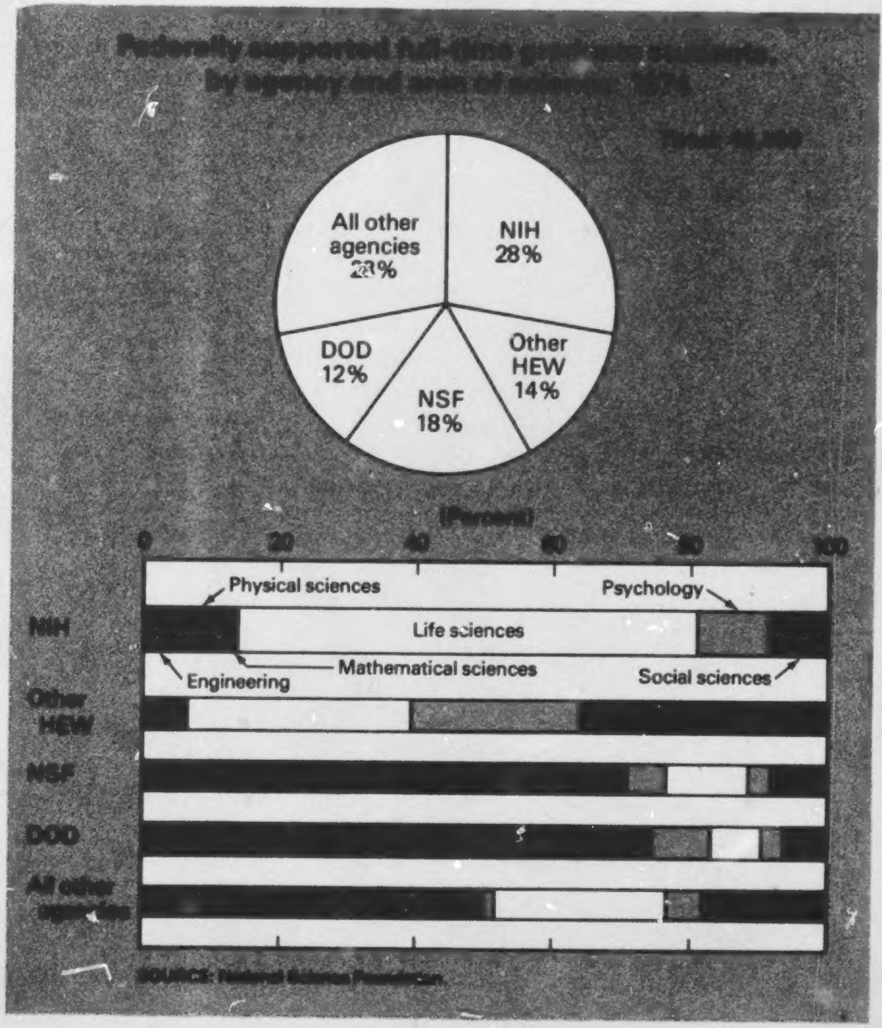
[22] See National Academy of Sciences, *Federal Policy Alternatives Toward Graduate Education*, National Board on Graduate Education, No. 3 (Washington, D.C., Jan. 1974).

to graduate science students. Its share of all Federal support increased from 24 percent in 1973 to 28 percent in 1974. The next largest agency was NSF, whose share of all Federal support was down to 18 percent in 1974 from 22 percent the previous year. As stated earlier, the emphasis of Federal support of science education in 1974 was placed on specific research projects and specialized training programs related to solving such important national problems as those generated by declining energy sources, pollution of air and water, and deterioration of health care systems. As expected, NIH concentrated its support in the life sciences, NSF and DOD in the physical sciences and engineering.


Federally supported full-time graduate students, by agency and area of science: 1974

SOURCE: National Science Foundation.

TYPE OF MAJOR SUPPORT

The 70,500 students in 1974 that relied on "other" types of support, primarily self-support, made up 36 percent of all full-time science students in advanced degree programs, up from 31 percent in 1973. This growing segment of students was accompanied by a steady decline in those dependent on the traditional types of support—fellowships, traineeships, research, and teaching assistantships. The second most utilized mechanism, the teaching assistantship, accounted for 26 percent of the total in 1973, as compared with 24 percent in 1974.

In publicly controlled graduate schools, fellowships-traineeships were utilized the least; in private institutions, this form ranked second in importance. Also, 44 percent of the students in their first year of graduate work relied most heavily upon their own resources, while only 32 percent of the more advanced students did so.

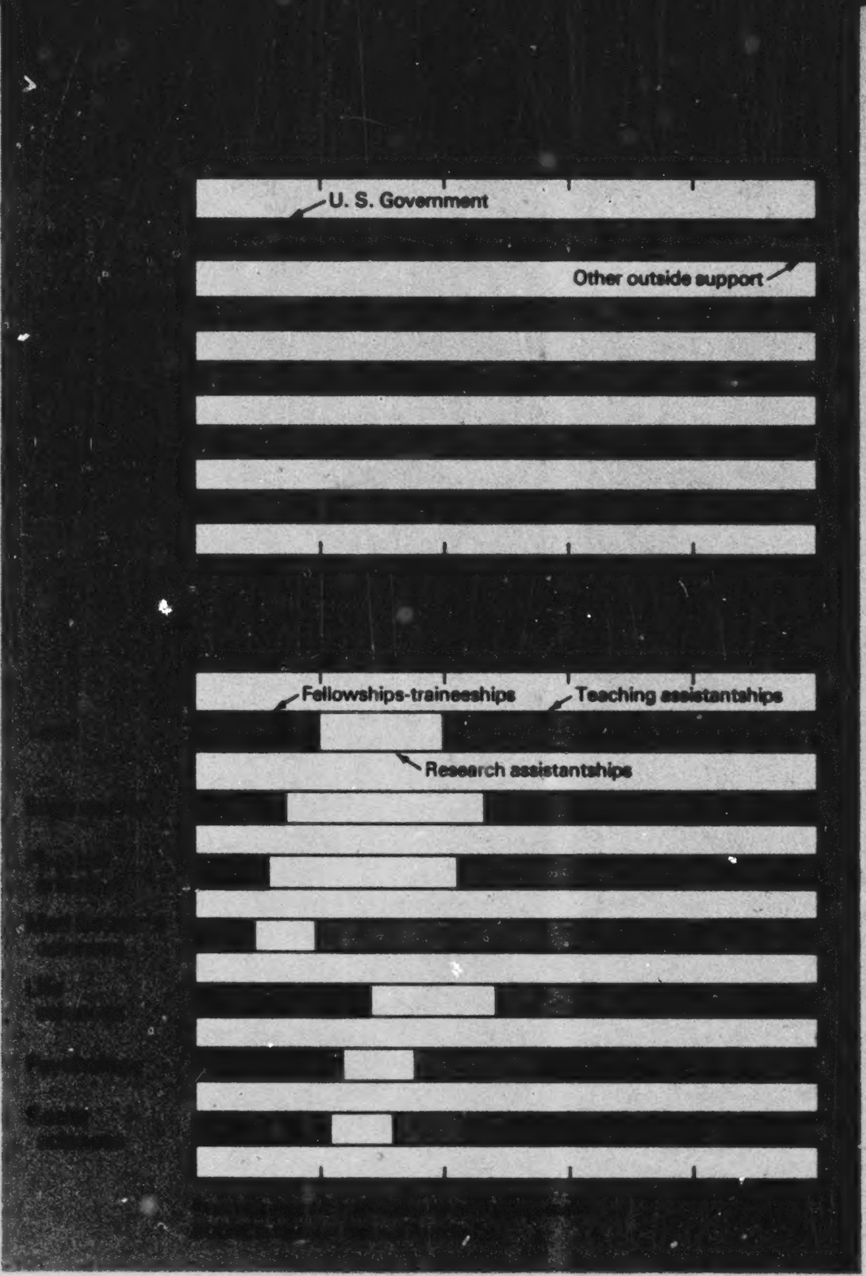
Full-time graduate enrollment in the sciences and engineering, by type of major support and control of institution: 1974

Type of major support	Number	Percent distribution				
		Total	Control of institution		Level of study	
			Public	Private	First year	Beyond first year
Total	195,196	100.0	100.0	100.0	100.0	100.0
Fellowships and traineeships	38,713	19.8	15.8	31.1	19.7	19.9
Research assistantships	39,502	20.2	21.5	16.7	14.3	23.8
Teaching assistantships	46,518	23.8	26.4	16.6	22.2	24.8
"Other" types of support	70,463	36.1	36.3	35.6	43.8	31.5

Source: National Science Foundation.

When each of the mechanisms of support was examined according to the major source of financial assistance, over one-half of both the research assistantships and fellowships-traineeships were dependent on Federal sources; institutions and State and local governments supported virtually all of the teaching assistants.

In four of the six major areas of science—engineering, psychology, and the life and social sciences—students relied most heavily upon "other" types of support, primarily their own resources. In the physical and mathematical sciences, the teaching assistantship was the most popular mechanism of support, and research assistantships ranked second in order of importance in engineering and the physical sciences.



CITIZENSHIP

Only 16 percent of the full-time graduate students in 1974 were foreign, compared with 19 percent in 1973. They were concentrated in engineering and life science disciplines, while the majority of students holding U.S. citizenship were enrolled in the life and social sciences.

A higher percentage of foreign students (17 percent) were studying in doctorate than in master's programs (10 percent). Also, private institutions attracted a slightly larger share of foreign students (19 percent) than did public institutions (15 percent).

Full-time graduate enrollment, by area of science and citizenship: 1974

Area of science	Total		U.S. citizens		Foreign students	
	Number	Percent distri-bution	Number	Percent distri-bution	Number	Percent distri-bution
Total, all areas	195,196	100.0	163,532	100.0	31,664	100.0
Engineering	34,311	17.6	23,247	14.2	11,064	35.0
Physical sciences	29,200	15.0	23,905	14.6	5,295	16.7
Mathematical sciences	13,027	6.7	10,579	6.5	2,448	7.7
Life sciences	52,135	26.7	45,632	27.9	6,503	20.5
Psychology	18,340	9.4	17,817	10.9	523	1.7
Social sciences	48,183	24.7	42,352	25.9	5,831	18.4

Source: National Science Foundation.

SEX OF GRADUATE STUDENTS

Possibly spurred by intensified recruitment efforts and affirmative-action programs, the number of women enrolled full time in graduate science programs is on the rise. Women represented 24 percent of the full-time graduate science population in 1974, up from 19 percent in 1973. Women in graduate programs in 1974 were concentrated in the life and social sciences; the smallest number of women were in engineering. This distribution corresponded closely with that of science Ph. D. recipients in 1974—30 percent of the 2,600 female doctorates received their Ph. D.'s in the life sciences and 1 percent in engineering.[23] As in 1973, male graduate enrollment was fairly evenly distributed among three areas—the life sciences, engineering, and the social sciences. Of the 15,700 male Ph. D. holders in 1974, 23 percent were in the life sciences and only 7 percent were in the mathematical sciences.

The highest percentage of men in their first year of graduate work were studying in engineering, while the highest proportion of women were in the social sciences. Psychology attracted the lowest percentage of male graduate students in their first year of study, and engineering enrolled the smallest share of first-year women graduate students.

Full-time graduate enrollment and doctorate recipients, by area of science and sex of student: 1974

Area of science	Full-time graduate enrollment					Doctorate recipients				
	Total	Men		Women		Total	Men		Women	
		Number	Percent distribution	Number	Percent distribution		Number	Percent distribution	Number	Percent distribution
Total, all areas	195,196	148,640	100.0	46,556	100.0	18,316	15,726	100.0	2,590	100.0
Engineering	34,311	32,779	22.1	1,532	3.3	3,144	3,110	19.8	34	1.3
Physical sciences	29,200	25,755	17.3	3,445	7.4	3,696	3,436	21.8	260	10.0
Mathematical sciences	13,027	10,537	7.1	2,490	5.3	1,196	1,081	6.9	115	4.4
Life sciences	52,135	36,989	24.9	15,146	32.5	4,407	3,623	23.0	784	30.3
Psychology	18,340	10,998	7.4	7,342	15.8	2,587	1,796	11.4	791	30.5
Social sciences	48,183	31,582	21.2	16,601	35.7	3,286	2,680	17.0	606	23.4

Source: National Science Foundation and National Research Council.

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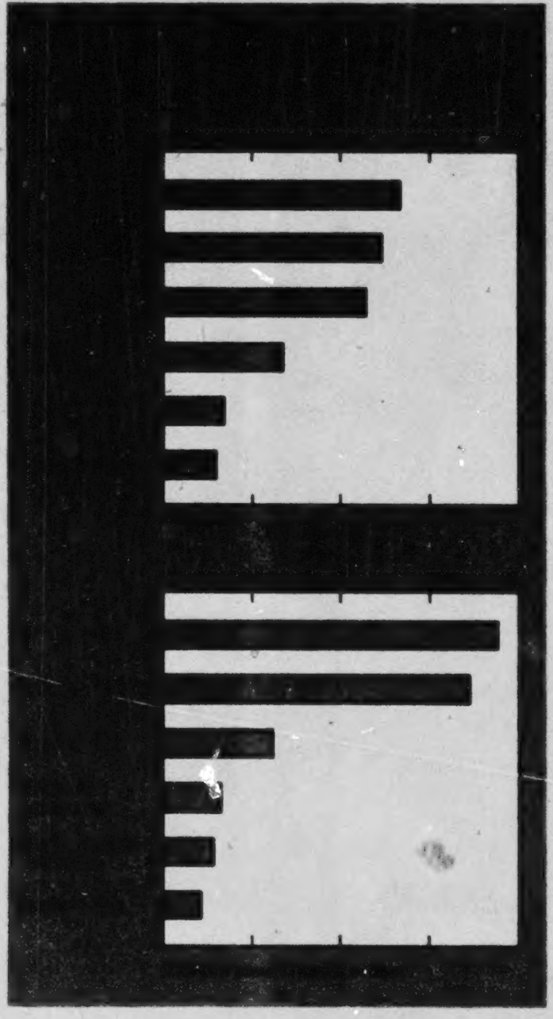
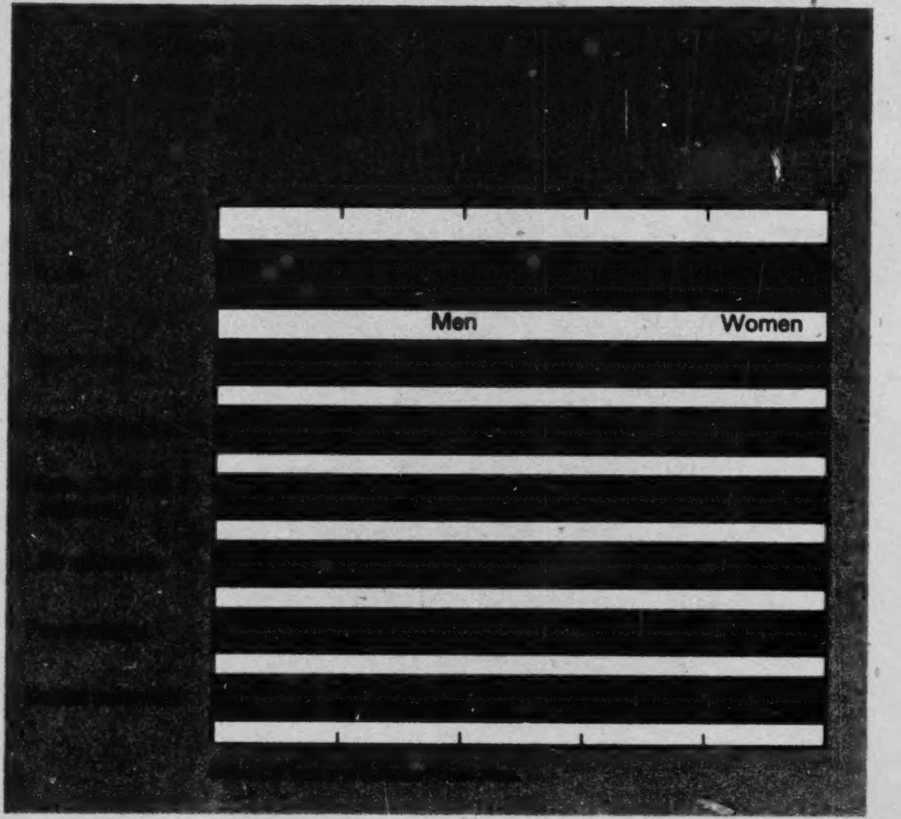
[23] See National Academy of Sciences, *Summary Report: 1974 Doctorate Recipients from United States Universities*, special tabulations, *op. cit.*



were men; an even higher proportion of men were enrolled in doctorate departments, 78 percent. In every area of science, the proportion of men enrolled in doctorate departments was higher than in master's departments. Conversely, the 9,400 women enrolled in master's programs represented 36 percent of all master's enrollment, while the 37,200 women in doctorate programs represented only 22 percent of all doctorate-level enrollment.

In 1974 institutions and State and local governments provided the highest percentage of all means of support to both men and women graduate students, 39 percent and 37 percent, respectively. In the next ranked source, self-support, women relied more heavily on their own financial resources than did men. Both men and women received approximately the same proportionate share of Federal aid available to full-time students—25 percent to men and 24 percent to women.



Of the 48,000 students receiving Federal assistance for graduate science study in 1974, 77 percent were men, and in DOD programs, 95 percent were men, the highest ratio among all the agencies. Two-thirds of the students supported by NIH were men, but the remaining agencies within HEW supported men and women equally. Only 12 percent of the 8,800 students receiving NSF support were women.

Full-time graduate enrollment in the sciences and engineering, by source of major support and sex of student: 1974

Source of major support	Total		Men		Women	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total	195,196	100.0	148,640	100.0	46,556	100.0
U.S. Government	48,012	24.6	36,928	24.8	11,084	23.8
Institutional support[1]	75,516	38.7	58,471	39.3	17,045	36.6
Other outside support	16,635	8.5	14,024	9.4	2,611	5.6
Self-support	55,033	28.2	39,217	26.4	15,816	34.0

[1] Includes support from State and local governments.

Source: National Science Foundation.

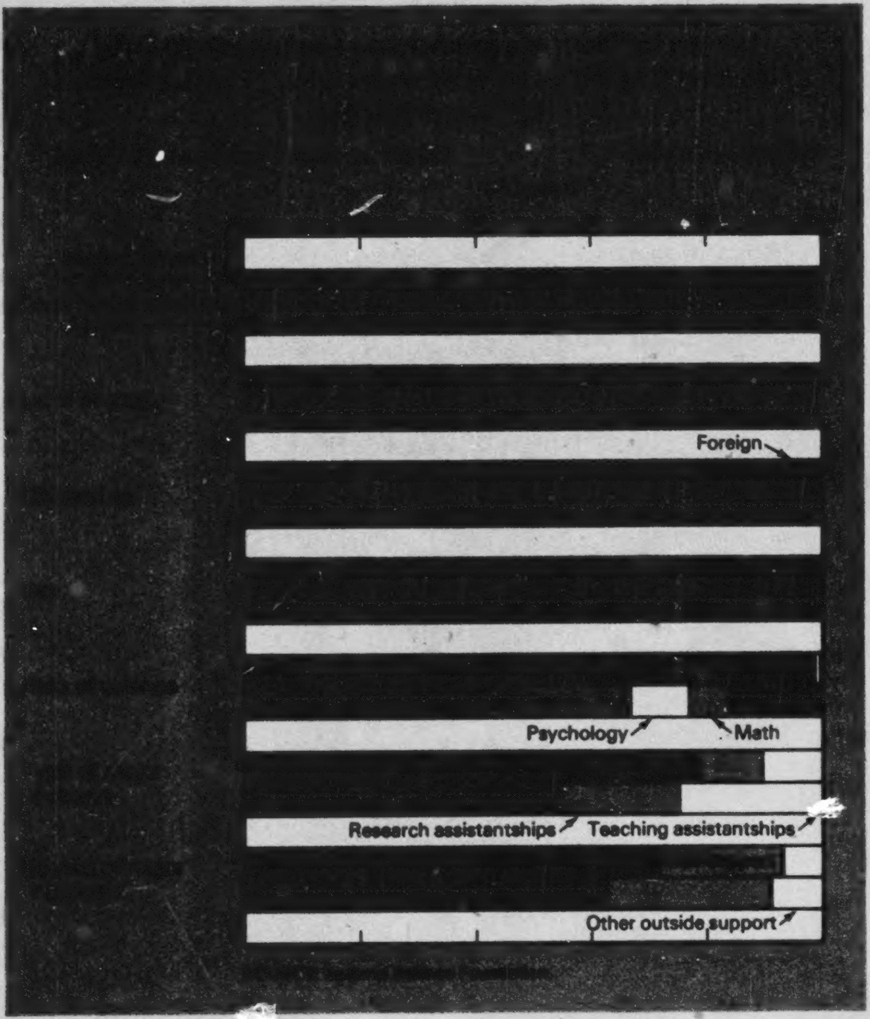
Federally supported full-time graduate students in the sciences and engineering, by agency and sex of student: 1974

Federal agency	Number	Percent distribution	Percent of total		
			Total	Men	Women
U.S. Government, total	48,012	100.0	100.0	76.9	23.1
DOD	5,555	11.6	100.0	94.5	5.5
NIH	13,630	28.4	100.0	66.6	33.4
Other HEW	6,518	13.6	100.0	50.2	49.8
NSF	8,791	18.3	100.0	88.4	11.6
All other agencies	13,518	28.2	100.0	85.5	14.5

Source: National Science Foundation

The 13,200 full-time graduate students enrolled for master's or Ph. D. degrees in medical school departments in 1974 represented only 7 percent of the total full-time graduate science student population, the same proportion as in 1973. The characteristics of these students were basically the same as in 1973. Fifty percent of the graduate students enrolled in medical schools received a fellowship or traineeship, while only 18 percent of the students in all other graduate departments utilized this mechanism of support. Also, nearly one-half of the students enrolled in medical departments were federally supported, while the main source of support for all other graduate students was institutional and State and local government support. Medical graduate departments enrolled a larger proportion of women but a smaller proportion of foreign students than did the other graduate departments.

The proportion of first-year students to the total was virtually the same for both medical and graduate departments. As expected, nearly all of the graduate students in medical schools were in the life sciences, but only one-fifth of the students in other graduate departments were in these fields. In medical school departments, a slightly higher proportion of women received Federal support than did men. Within all other graduate departments, a higher proportion of women than men were self-supporting; however, institutional assistance was the support source for the largest concentration of both men and women in all other graduate departments.



Full-time graduate enrollment in medical school departments, as compared with all other departments, by source of major support and sex of student: 1974

Source of major support	Number	Percent distribution			
		Medical school departments		All other graduate departments	
		Men	Women	Men	Women
Total	13,179	100.0	100.0	100.0	100.0
U.S. Government	5,989	43.7	49.4	23.6	21.4
Institutional support[1]	3,447	27.5	22.9	40.1	37.9
Other outside support	898	7.4	5.5	9.6	5.6
Self-support	2,845	21.3	22.2	26.7	35.1

[1] Includes support from State and local governments.

Source: National Science Foundation.

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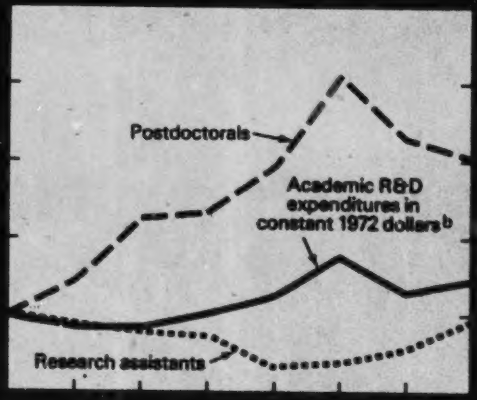
Additional details on graduate students were previously published in appendix III, *Detailed Statistical Tables* (NSF 75-322). Appendix IV of this report presents aggregate data on the Consolidated Departmental Data Sheets.

Trends in Utilization

The employment of postdoctorals in graduate departments of Ph.D.-granting institutions reached its peak in 1972 at 30 percent above the 196[illegible] level. The downturn that began in 1973 was sustained in 1974, although the decline was not as steep. In spite of the dropoff in academic postdoctoral employment between 1972 and 1974, the total number still remained at 19 percent above 1967. Academic R&D expenditures from all sources also rose in constant-dollar terms during the fiscal year 1968-75 period but at a lesser rate.[24] After peaking in fiscal year 1973, separately budgeted R&D funds in the university sector dropped back to their fiscal year 1972 level before beginning to rise again. By fiscal year 1975, R&D expenditures were only about 5 percent above fiscal year 1968 in constant-dollar terms. Meanwhile, the number of graduate research assistants rose in 1974 almost to the 1967 level.

Traditionally, the training of postdoctorals has been aimed at augmenting the teaching and research experience of Ph.D. holders who anticipated academic careers, while at the same time strengthening the research capability of the departments themselves. However, the growth in employment of all scientists and engineers at universities and colleges leveled off during 1971-75 to a rate of 2.1 percent per year from the 7.4-percent annual rate of increase during 1965-71.[25] This slowing of employment growth of scientists and engineers meant a reduction in the number of academic job openings for postdoctorals in both teaching and R&D positions. The survey on which the study of academic employment was based showed that utilization of scientists and engineers in R&D-oriented occupations on a full-time-equivalent (FTE) basis dropped from 26 percent of the total in January 1967 to 20 percent in January 1975, another deciding factor affecting the employment of research-oriented postdoctorals. The subsequent demand for teachers during this period was a reflection of the growth in overall postsecondary enrollment discussed earlier and the reduction in R&D expenditures in real terms at universities and colleges between fiscal years 1973 and 1975.



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[24] See National Science Foundation, *Science Resources Studies Highlights*, "Academic R&D Spending Up 12 Percent in FY 1975" (NSF 76-307) (Washington, D.C., May 4, 1976).

[25] See National Science Foundation, *Detailed Statistical Tables. Manpower Resources for Scientific Activities at Universities and Colleges, January 1975* (NSF 75-329) (Washington, D.C. 20550, Nov. 1975).

among fields of science. In the physical sciences, the research associates receiving Federal support increased at twice the rate of graduate research assistants. In the life sciences, the reverse was true—the rate of increase in research assistants was 9 percent compared to only 2 percent for research associates.

Although research associates receiving Federal financing increased 4 percent, those receiving postdoctoral fellowships or traineeships declined by 5 percent. The life sciences employed the largest proportion, or 86 percent of all federally funded fellows and trainees in postdoctoral occupations in 1974 and registered a 2-percent decline over 1973. Federal support to graduate students holding fellowships and traineeships declined at an even greater rate than did postdoctorals holding such appointments, 12 percent, as shown earlier.

Since the Federal Government accounted for 67 percent of all R&D expenditures at universities and colleges and provided support to 71 percent of the postdoctorals, changes in Federal funding patterns had a decided effect on postdoctoral utilization. The Federal share of R&D support rose 2 percent in constant-dollar terms in the fiscal year 1974-75 period. Also, the total number of federally supported postdoctorals increased slightly between 1973 and 1974, but those receiving other-than-Federal support decreased by 9 percent. In the life sciences, where 63 percent of all postdoctorals were employed, the Federal role was fairly stable, but between 1973 and 1974 support from other sectors declined by 12 percent. The 2-percent increase in federally financed postdoctorals in the physical sciences was more than offset by the 14-percent drop in other sources of support.

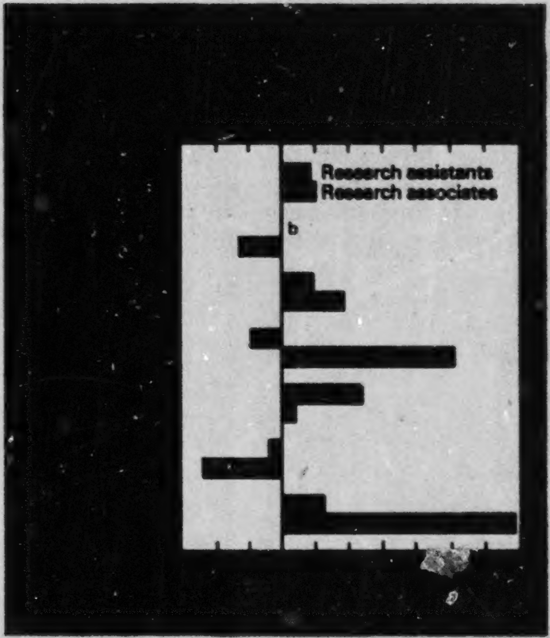
Both graduate research assistants and postdoctoral research associates receiving Federal support increased between 1973 and 1974. However,

Utilization of postdoctorals, by area of science and source of support: 1973-74 (Percent change)

Area of science	Total	Federal support	Non-federal support
Total, all areas	-2.4	0.5	-8.9
Engineering	5.6	-4.9	36.1
Physical sciences	-1.5	2.1	-13.5
Mathematical sciences	3.0	13.6	-13.7
Life sciences	-4.3	-.5	11.2
Psychology	11.2	11.2	11.2
Social sciences	4.5	23.2	-7.8

Note: Based on 5,939 graduate departments reporting in 1973 and 1974.
Source: National Science Foundation.

The trend away from postdoctoral employment in the academic sector may be a reflection of the changing distribution of all scientific employment. No longer is a postdoctoral appointment considered a temporary stopover on the way to an assured faculty or research position. With academic hiring in a slump and acquisition of tenure no longer a certainty, the other sectors of the economy may be more attractive alternatives for the Ph. D.-holder searching for a more secure future. Information recently made available from NSF's Manpower Characteristics System revealed that of the estimated 1,973,000 scientists and engineers in the United States in 1974, only 16,000, or 1.0 percent, were estimated as unemployed.[26] Within this group, doctorate-holders in the S/E population sustained an estimated unemployment rate of only 1.2 percent in spring 1973 and 1.0 percent in early 1975, compared to national average unemployment rates of 5.2 in March 1973 and 9.1 in March 1975.[27] Thus, while the university's role as a potential employer of postdoctorals was waning, other sectors in the economy were absorbing the doctorate-degree-holders to such an extent that only a small number were out of the labor force.



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[26] See National Science Foundation, *Science Resources Studies Highlights*, "The Nation's Science and Engineering Manpower Resources: 1974" (NSF 76-312) (Washington, D.C., June 28, 1976).

[27] Not seasonally adjusted. See Department of Labor, Bureau of Labor Statistics, *Employment and Earnings* (Washington, D.C., Apr. 1973 and Apr. 1975).

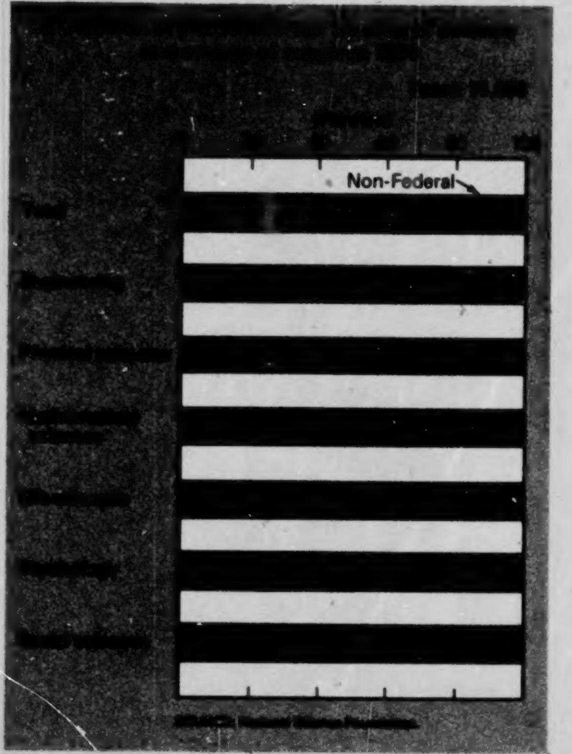
Virtually all of the 16,800 postdoctorals who received appointments in Ph.D.-granting institutions in 1974 were employed in doctorate-level departments. The majority, or 71 percent, were reported as receiving some form of Federal support, up slightly from 69 percent the previous year. The number in training in public institutions, 9,200, represented approximately the same proportion to the total, 55 percent, as in 1973. Of the federally supported appointees in public institutions, about one-third were on fellowships and traineeships, and the remaining two-thirds were research associates. In private institutions, however, federally sponsored fellows-trainees represented 46 percent and over one-half were research associates.

Utilization of postdoctorals in the sciences and engineering by source of support and control of institution: 1974

Source of support	Total		Public		Private	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total	16,776	100.0	9,182	100.0	7,594	100.0
U.S. Government, total	11,847	70.6	6,483	70.6	5,364	70.6
Fellowships-traineeships	4,631	27.6	2,186	23.8	2,445	32.2
Research associates	7,216	43.0	4,297	46.8	2,919	38.4
Non-U.S. Government	4,929	29.4	2,699	29.4	2,230	29.4

Source: National Science Foundation.

Postdoctorals who received their Ph.D.'s between 1970 and 1974 were considered "recent" for the purpose of this study. In public institutions, "recent" doctorate holders constituted 60 percent of the total; in private institutions, 55 percent. These proportions have not changed markedly since 1973. Of all the areas of science, the physical sciences had the highest proportion of "recent" doctorate holders, 70 percent; in the social sciences, they made up only 32 percent. Also, the physical sciences employed the highest proportion of postdoctorals receiving Federal support, while the social sciences supported the smallest share.



Nearly one-half of all postdoctorals were located in the medical school affiliates of Ph. D.-granting institutions. Of these, 60 percent, or 4,700, were involved in fields of clinical medicine, and another 3,000 were in the biological sciences.

Utilization of postdoctorals by area of science: 1974

Area of science	Total	Medical school departments	All other departments
Total, all areas	16,776	7,815	8,961
Engineering	1,086	13	1,073
Physical sciences	4,121	2	4,119
Mathematical sciences	140	1	139
Life sciences	10,635	7,760	2,875
Agriculture	307	—	307
Biological sciences	5,277	2,990	2,287
Clinical sciences	4,790	4,696	94
Other health sciences	261	74	187
Psychology	308	28	280
Social sciences	486	11	475

Source: National Science Foundation.

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Additional statistical details on postdoctorals were previously published in appendix III, *Detailed Statistical Tables* (NSF 75-322). Appendix IV of this report presents aggregate data on the Consolidated Departmental Data Sheets.

Appendixes

The Universe
Response Rates
Imputation Rates
Methods of Calculating Trends
G.I. Benefits
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Other Surveys of Graduate Enrollment
Comparison of Results from the 1974 Quick
Response Survey with the GSSSP Survey

II. Classification of Institutions in Survey

Ranking of Top 100 Institutions

III. Listing of Statistical Tables

IV. Instructions and Consolidated Departmental Data Sheets

Definitions of Types of Major Support

Note

The statistical tables on which this report is based have been published under separate cover (NSF 75-322); the complete listing of the tables appears on p. 56. The detailed statistical tables may be obtained gratis from the National Science Foundation, Washington, D.C. 20550.

Data tapes for this and prior surveys can be purchased at the following address:

Moshman Associates, Inc.
6400 Goldsboro Road
Washington, D.C. 20034

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The Universe

Every institution of higher education in the United States that was known to have at least one doctorate science or engineering program was included in the 1974 Survey of Graduate Science Student Support and Postdoctorals (GSSSP). The medical school component of each institution was surveyed separately, bringing the total number of institutions surveyed to 104 medical schools and 251 graduate schools. Only one institution was unable to respond in 1974—San Diego State University—and its 1973 response was used as the basis for imputation of 1974 data.

During the 1973 survey cycle, NSF conducted a study of eligible departments and institutions that should be included in future surveys. A thorough search through graduate school catalogs and institution directories added 14 doctorate-granting institutions and approximately 1,500 science departments to the 6,559 departments that reported in 1973.[1] For the 1974 survey, a list of all known departments was provided to each Survey Coordinator on a computer-generated facsimile of Form 811 with instructions to delete those no longer in existence and to add any newly formed departments or any that were inadvertently omitted. The Coordinators returned the updated Form 811's along with their survey responses on Form 812's from 7,505 departments, of which 6,141 were at the doctorate level and 1,364 at the master's, the largest survey universe to date.

Table I-1 shows the number of institutions and departments covered in each year of this statistical series, separated into two distinct populations: (1) Data based on applications for NSF graduate traineeships for 1967-71; and (2) data collected through the GSSSP for 1972-74.

The increase of 946 departments to the survey universe between 1973 and 1974 occurred primarily in the life sciences, as shown on table I-2. Of the 586 new departments added to the life

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[1] See National Science Foundation, *Graduate Science Education: Student Support and Postdoctorals, Fall 1973* (NSF 74-318), appendix I, technical notes (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1975).

OCTOBER 1974 APPROVAL EXPIRES
DECEMBER 1977

NATIONAL SCIENCE FOUNDATION
SURVEY OF GRADUATE SCIENCE STUDENT SUPPORT AND POSTDOCTORALS, FALL 1974
SUMMARY OF DEPARTMENTAL DATA SHEETS

PLEASE RETURN BY JANUARY 31, 1975

INSTITUTION IDENTIFICATION: 0102 CASE WESTRN RESERVE UNIV

--(LEAVE BLANK)-- RES-PONSE CODE (1)	DEPT. CODE (2)	SUB E (3)	------------ DEPARTMENT NAME ------------ (4)	LEVEL ** OF DEPT. (5)
			AERONAUTICAL AND ASTRONAUTICAL ENG	
			ANTHROPOLOGY	
			ASTRONOMY	
			BIOLOGY	
			BIOMEDICAL ENGINEERING	
			CHEMICAL ENGINEERING	
			CHEMISTRY	
			ECONOMICS	
			ELECTRICAL COMPUTER SCIENCE	
			ELECTRICAL ENGINEERING	
			ENGINEERING MECHANICS	
			GEOLOGY	
			HISTORY OF SCIENCE	
		*	MACROMOLECULAR SCIENCE	
			MATHEMATICS AND STATISTICS	
			METALLURGICAL AND MATERIALS ENGINEERING	
			OPERATIONS RESEARCH	
			PHYSICS	
			POLITICAL SCIENCE	
			POLYMER SCIENCE	
			PSYCHOLOGY	
			SOCIOLOGY	
			SYSTEMS ENGINEERING	

SURVEY COORDINATOR: TITLE:

TELEPHONE:

ADDRESS:

SIGNATURE: DATE:

* DEPARTMENT DID NOT RESPOND TO 1973 SURVEY, BUT WAS LISTED IN YOUR MOST RECENT GRADUATE CATALOG

** PLEASE ENTER -M- FOR MASTERS OR -D- FOR DOCTORATE LEVEL

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in coverage, while allowing for a more intense analysis of the characteristics of clinical fields in 1974, will also result in increased capability for determining trends in these fields in future surveys.

All master's and doctorate departments replying in 1974 are listed on table I-3, aggregated into areas and fields of science. Although titles of individual departments may change slightly over the years, their classification into subfields remains fairly constant. However, both NSF and NIH continually examine these classifications in an effort to assure that they meet the needs of data users for comparative purposes, and that they are flexible enough to meet a variety of uses.

Table I-1.—Number of institutions and departments in the survey: 1967-74

Year[1]	Number of institutions	Number of departments		
		Total	Master's	Doctorate
1967	209	3,016	436	2,580
1968	219	3,190	454	2,736
1969	224	3,354	460	2,894
1970	227	3,544	473	3,071
1971	224	3,397	407	2,990
1972	302	4,637	826	3,811
1973	339	6,559	876	5,683
1974	355	7,505	1,364	6,141

[1] Years 1967-71 represent applications to NSF's Graduate Traineeship Program; 1972, 1973, and 1974 were survey years.
Source: National Science Foundation.

Table I-2.—Number of departments in the survey, by area of science: 1973-74

Area of science	1973	1974	Increase
Total, all areas	6,559	7,505	946
Engineering	926	1,011	85
Physical sciences	713	748	35
Mathematical sciences	339	364	25
Life sciences	3,422	4,008	586
Psychology	215	259	44
Social sciences	928	1,115	187

Source: National Science Foundation.

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Total	7,505	1,364	6,141
Engineering	1,011	228	783
Aeronautical, total	35	3	32
Aeronautical and astronautical engineering	3	......	3
Aeronautical engineering	1	......	1
Aeronautics	2	......	2
Aeronautic and astronautics	6	......	6
Aerospace engineering	21	2	19
Aerospace engineering and engineering physics	2	1	1
Agricultural, total	46	18	28
Agricultural and irrigation engineering	1	......	1
Agricultural engineering	40	16	24
Chemical and paper engineering	1	1	......
Wood products engineering	1	......	1
Wood technology	3	1	2
Chemical, total	113	17	96
Chemical and metallurgical engineering	4	1	3
Chemical and nuclear engineering	3	......	3
Chemical engineering and materials science	4	......	4
Chemical engineering	95	12	83
Plastics	1	1	......
Textiles	6	3	3
Civil, total	139	31	108
Civil and environmental engineering	10	1	9
Civil and geological engineering	1	......	1
Civil engineering	108	25	83
Civil engineering and engineering mechanics	4	1	3
Environmental engineering	10	4	6
Environmental sciences and engineering	6	......	6
Electrical, total	141	21	120
Electrical computer science	5	......	5
Electrical engineering	134	21	113
Electrical power engineering	1	......	1
Electronics and instrumental	1	......	1
Engineering science, total	61	10	51
Applied mechanics	7	......	7
Applied science	5	4	1
Engineering acoustics	2	1	1
Engineering and applied physics	1	......	1
Engineering and applied science	2	......	2
Engineering mechanics	17	2	15
Engineering physics	1	......	1
Engineering science	15	3	12
Fluid dynamics	2	......	2
Mechanics	5	......	5
Mechanics and hydraulics	1	......	1
Theoretical and applied mechanics	3	......	3
Industrial, total	106	39	67
Administrative science	2	1	1
Energy management and power	2	1	1
Engineering management	5	4	1
Industrial and systems engineering	3	......	3
Industrial communication engineering	1	......	1
Industrial engineering and management science	5	2	3
Industrial engineering and operations research	3	......	3
Industrial engineering	42	14	28
Industrial management	3	1	2
Management	1	......	1
Management engineering	1	1	......
Management science	10	5	5
Manufacturing engineering	1	1	......
Operations research	11	1	10
Systems engineering	15	7	8
Systems management	1	1	......
Mechanical, total	143	33	110
Aerospace and mechanical engineering	16	......	16
Architectural engineering	2	2	......
Construction science	1	1	......
Marine engineering and naval architecture	1	......	1
Mechanical and aeronautical engineering and material science	4	......	4
Mechanical and industrial engineering	1	......	1
Mechanical engineering and applied mechanics	2	......	2
Mechanical engineering	110	28	82
Naval architecture	2	......	2
Transportation	3	1	2
Welding engineering	1	1	......
Metallurgical, total	65	5	60
Ceramic engineering	9	2	7
Ceramics	2	......	2
Material science	12	1	11
Materials engineering	12	......	12
Metallurgical and materials engineering	11	......	11

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Metallurgical engineering	12	2	10
Metallurgy	6	......	6
Solid state science and technology	1	......	1
Mining, total	21	8	13
Geological engineering	2	1	1
Mineral engineering	5	2	3
Mineral preparation	1	......	1
Mining	2	1	1
Mining and metallurgy	2	......	2
Mining engineering	9	4	5
Nuclear, total	32	4	28
Nuclear engineering	26	3	23
Nuclear science and engineering	6	1	5
Petroleum, total	15	4	11
Fuel technology	2	......	2
Petroleum and chemical engineering	3	......	3
Petroleum engineering	10	4	6
Engineering, n.e.c., total	94	35	59
Architecture	13	11	2
Bioengineering	11	......	11
Biomedical engineering	19	1	18
Biomedical engineering and mathematics	1	......	1
Clinical engineering	1	......	1
Communications (engineering related)	1	......	1
Economics of engineering	1	......	1
Energy engineering	2	......	2
Engineering	22	9	13
Engineering administration	3	3	......
Engineering design	3	2	1
Engineering graphics	1	1	......
Engineering mathematics	1	......	1
General engineering	2	1	1
Information engineering	1	......	1
Landscape architecture	5	4	1
Polymer science and engineering	1	......	1
Sanitary engineering	1	1	......
Technology	2	1	1
Textile engineering	1	......	1
Thermal engineering	2	1	1
Physical sciences	748	153	595
Astronomy, total	30	3	27

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Astronomy	29	3	26
Astrophysics	1	......	1
Atmospheric sciences, total	26	2	24
Astrogeophysics	1	......	1
Atmospheric and space sciences	1	......	1
Atmospheric sciences	10	......	10
Meteorology	13	2	11
Meteorology and oceanography	1	......	1
Chemistry, total	239	39	200
Chemistry	231	38	193
Crystallography	1	......	1
Paper technology	2	1	1
Physical chemistry	1	......	1
Polymer science	4	......	4
Geosciences, total	184	57	127
Earth and planetary science	5	1	4
Earth sciences	18	9	9
Environmental sciences	10	5	5
Geochemistry	3	......	3
Geodetic science	1	......	1
Geological science	18	3	15
Geology	86	33	53
Geology and geography	8	3	5
Geology and geological engineering	3	......	3
Geology and geophysics	9	1	8
Geophysics	10	1	9
Geosciences	6	1	5
Hydrogeology	1	......	1
Hydrology	2	......	2
Mineralogy	2	......	2
Paleontology	1	......	1
Petroleum geology	1	......	1
Oceanography, total	33	3	30
Marine science	11	2	9
Ocean engineering	5	1	4
Oceanography	15	......	15
Physical oceanography	1	......	1
Water chemistry	1	......	1
Physics, total	236	49	187
Applied physics	5	......	5
Astronomy and space science	1	......	1
Chemical physics	5	......	5

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Electronics	1	1	......
Mathematical physics	1	......	1
Molecular science (emphasis on physics)	1	......	1
Optical science	1	......	1
Optics	1	......	1
Physical sciences	2	1	1
Physics	189	44	145
Physics and astronomy	21	3	18
Physics and astrophysics	1	......	1
Physics and geophysics	1	......	1
Physics and mathematics	1	......	1
Planetary and space science	2	......	2
Plasma physics	1	......	1
Solid state physics	1	......	1
Space science	1	......	1
Mathematical sciences	364	101	263
Applied mathematics, total	87	26	61
Applied mathematics	8	2	6
Computer science	67	22	45
Information science	12	2	10
Mathematics, total	229	71	158
Mathematical science	10	4	6
Mathematics	211	65	146
Mathematics and applied mathematics	1	1	......
Mathematics and statistics	6	1	5
Quantitative studies	1	......	1
Statistics, total	48	4	44
Applied statistics	2	1	1
Mathematical statistics	1	......	1
Statistics	43	2	41
Statistics and computer science	2	1	1
Life sciences	4,008	434	3,574
Agriculture, total	309	82	227
Agricultural chemistry	2	......	2
Agricultural education	1	1	......
Agricultural science	3	2	1
Agriculture	4	4	......
Agronomy	32	3	29
Agronomy and genetics	2	......	2
Animal breeding	2	......	2
Animal diseases	1	......	1
Animal husbandry	2	......	2
Animal industry	5	3	2
Animal nutrition	4	......	4
Animal science	45	10	35
Avian science	1	1	......
Crop and soil science	1	......	1
Dairy husbandry	1	......	1
Dairy science	17	4	13
Farm crops	3	......	3
Floriculture	1	......	1
Forest botany	1	......	1
Forest chemistry	1	......	1
Forest entomology	1	......	1
Forest management	3	1	2
Forest products	1	......	1
Forest resources	6	1	5
Forestry	31	10	21
Forestry and horticulture	2	1	1
Horticulture	34	10	24
International agriculture development	1	1	......
Natural resources	6	3	3
Plant and soil science	9	3	6
Plant breeding	1	......	1
Plant industry	1	1	......
Plant science	11	1	10
Pomology	1	......	1
Poultry husbandry	1	......	1
Poultry science	16	5	11
Range management	4	2	2
Range science	3	......	3
Recreation and parks	7	5	2
Resource development	2	1	1
Resource sciences	2	1	1
Silviculture	1	......	1
Soil science	8	......	8
Soils	5	......	5
Soils and meteorology	1	......	1
Vegetable crops	3	1	2
Water resources	5	1	4
Water resources administration	3	2	1
Water sciences	1	1	......
Watershed management	1	......	1
Wildlife	4	1	3
Wildlife management	5	2	3
Anatomy, total	103	2	101
Anatomy	102	2	100
Human anatomy	1	......	1

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Biochemistry, total	157	4	153
Agricultural biochemistry	2	......	2
Agricultural biochemistry/nutrition	1	......	1
Biochemical science	1	......	1
Biochemistry	125	4	121
Biochemistry/biophysics	7	......	7
Biochemistry/molecular biology	5	......	5
Biochemistry/nutrition	3	......	3
Biochemistry/pharmacology	1	......	1
Biological chemistry	7	......	7
Comparative biochemistry	1	......	1
Hormone research laboratory	1	......	1
Lipid research	1	......	1
Physiological chemistry	2	......	2
Biology, total	138	39	99
Behavioral biology	1	......	1
Biology	127	39	88
Developmental biology	6	......	6
Environmental biology	1	......	1
Evolutionary biology	1	......	1
Population biology	1	......	1
Population/environmental biology	1	......	1
Biometry and biostatistics, total	29	6	23
Biomathematics	5	......	5
Biomathematics and computer science	1	......	1
Biometry	11	3	8
Biostatistics	12	3	9
Biophysics, total	41	2	39
Biophysical sciences	3	......	3
Biophysics	19	......	19
Biophysics and physical biochemistry	1	......	1
Biophysics/human genetics	1	......	1
Biophysics/microbiology	2	......	2
Cell biophysics	1	......	1
Engineering biophysics	1	......	1
Macromolecular science	1	......	1
Medical physics	3	......	3
Molecular biophysics	2	......	2
Molecular biophysics and biochemistry	1	......	1
Radiation biology	3	1	2
Radiation biology and biophysics	2	1	1
Radiation biophysics	1	.....	1
Biosciences, n.e.c., total	77	21	56
Biological sciences	45	10	35
Biomedical science	3	......	3
Comparative medicine	3	1	2
General science	5	3	2
Health sciences	6	3	3
Laboratory	5	......	5
Life science	6	2	4
Natural science	3	2	1
Research (health)	1	......	1
Botany, total	90	4	86
Botanical science	1	......	1
Botany	46	3	43
Botany and microbiology	3	1	2
Botany and plant pathology	6	......	6
Plant pathology	29	......	29
Plant physiology	5	......	5
Cell biology, total	27	......	27
Biological structure	2	......	2
Cell physiology	1	......	1
Cellular biology	12	......	12
Molecular biology	12	......	12
Ecology, total	12	......	12
Ecology	11	......	11
Human ecology	1	......	1
Entomology and parasitology, total	41	3	38
Entomology	35	3	32
Entomology/parasitology	2	......	2
Parasitology	4	......	4
Genetics, total	51	1	50
Genetics	38	1	37
Human genetics	7	......	7
Medical genetics	6	......	6
Microbiology, total	172	9	163
Bacteriology	7	1	6
Bacteriology and public health	1	......	1
Immunology	8	......	8
Medical microbiology	8	1	7
Medical microbiology/immunology	8	......	8
Microbiology	137	7	130
Microbiology/medical genetics	1	......	1

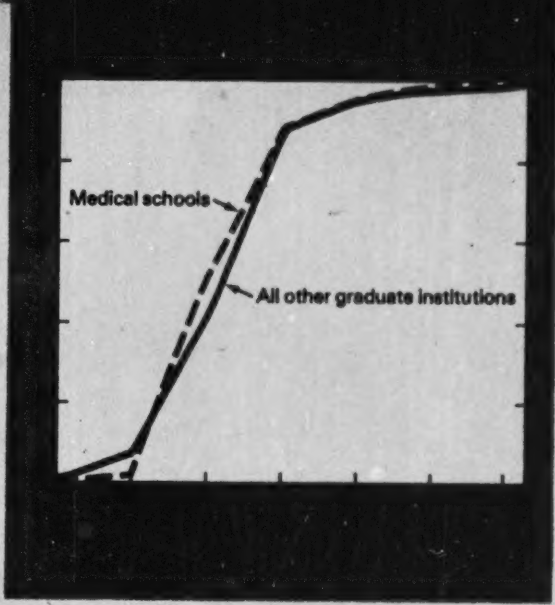
Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Virology	1	......	1
Virology and epidemiology	1	......	1
Nutrition, total	79	21	58
Food and nutrition	19	6	13
Food economics	2	1	1
Food science	17	4	13
Food science/technology	5	1	4
Food technology	3	2	1
Foods	1	......	1
Home economics	2	1	1
Nutrition	30	6	24
Pathology, total	142	12	130
Anatomical pathology	1	......	1
Cancer program/lab/center	4	......	4
Clinical pathology	6	2	4
Clinical pathology/laboratory medicine	2	2	......
Forensic medicine	3	......	3
Oncology	11	......	11
Pathobiology	1	......	1
Pathology	112	8	104
Radiation oncology	2	......	2
Pharmacology, total	137	7	130
Biochemical pharmacology	1	......	1
Medicinal chemistry	10	1	9
Pharmacognosy	7	1	6
Pharmacology	99	2	97
Pharmacology/therapeutics	5	......	5
Pharmacology/toxicology	8	2	6
Psychopharmacology	1	......	1
Toxicology	6	1	5
Physiology, total	134	1	133
Animal physiology	3	......	3
Exocrine physiology	1	......	1
Human physiology	1	......	1
Membrane biology	1	......	1
Neurophysiology	2	......	2
Physiological optics	3	......	3
Physiological science	1	......	1
Physiology	83	1	82
Physiology and anatomy	3	......	3
Physiology and biophysics	27	......	27
Physiology/pharmacology	8	......	8
Physiology, pharmacology, and biophysics	1	......	1

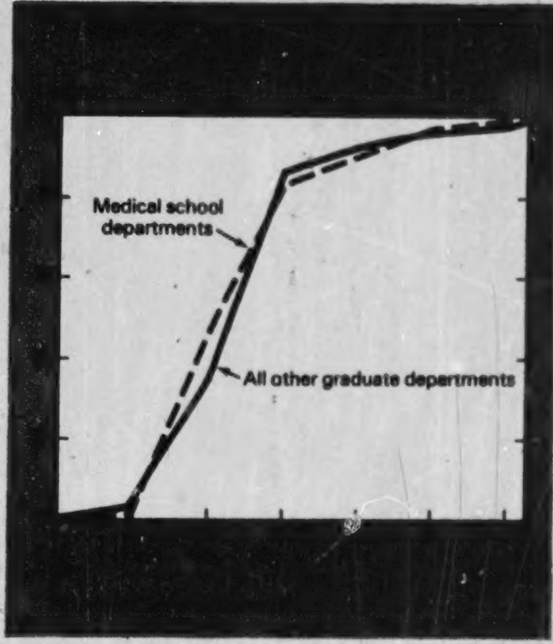
Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Zoology, total	70	7	63
Fish and wildlife	3	......	3
Fisheries	3	......	3
Forest zoology	1	......	1
Ornithology	1	1	......
Wildlife biology	2	2	......
Zoology	50	4	46
Zoology and entomology	5	......	5
Zoology and physiology	5	......	5
Other health sciences (inc. clinical), total	2,199	213	1,986
Administration-health related	1	......	1
Administrative medicine	2	......	2
Alcohol studies	1	1	......
Allergy and immunology	2	......	2
Allied health sciences	6	4	2
Ambulatory medicine	1	......	1
Anesthesiology	93	4	89
Audiology	1	......	1
Biopharmaceutical science	1	......	1
Biopsychology	2	......	2
Brain research	1	......	1
Cardiology	84	3	81
Cardiorespiratory/pulmonary	1	......	1
Cardiovascular medicine	13	......	13
Cardiovascular research center	1	......	1
Cardiovascular surgery	3	......	3
Chest diseases	6	......	6
Child studies	2	......	2
Clinical laboratory science	5	1	4
Clinical pharmacology	21	......	21
Community and environmental medicine	3	......	3
Community and preventive medicine	12	4	8
Community and public health	2	......	2
Community medicine	27	3	24
Connective tissue disease	2	......	2
Cranio-facial anomalies	1	......	1
Dental hygiene	2	1	1
Dental public health	1	......	1
Dentistry	19	9	10
Dermatology	43	1	42
Dermatology/syphilology	1	......	1
Diagnostic radiology	8	......	8
Disease control	1	......	1
Emergency medicine	3	......	3
Endocrinology	57	1	56
Endocrinology and metabolism	32	1	31
Endodontics	1	1	......

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Environmental health	9	1	8
Environmental medicine	3	......	3
Epidemiology	8	......	8
Epidemiology and environmental health	3	1	2
Experimental endocrinology	1	......	1
Experimental medicine	3	......	3
Family and community medicine	11	......	11
Family practice (medicine)	39	......	39
Gastroenterology	86	3	83
Health education-public health	1	......	1
Health planning	1	......	1
Health sciences administration	1	......	1
Health services	3	2	1
Health services administration	5	......	5
Health services education and research	1	......	1
Hematology	87	1	86
Hematology and immunology	1	......	1
Hematology and oncology	4	1	3
Histology	1	1	......
Hospital and health administration	4	2	2
Hospital pharmacy	3	3	......
Human reproduction	2	......	2
Hypertension	1	......	1
Industrial pharmacy	1	......	1
Infectious diseases	9	......	9
Internal medicine	19	......	19
International health	2	......	2
Laboratory animal medicine	3	......	3
Large animal surgery	2	2	......
Laryngology and bronchoesophagology	1	......	1
Legal medicine	2	......	2
Library, medical	3	1	2
Maternal and child health	4	1	3
Medical and education administration	1	......	1
Medical and public affairs	1	......	1
Medical care organization	1	......	1
Medical education research and development	4	......	4
Medical research	1	......	1
Medical sciences	3	......	3
Medical technology	9	8	1
Medicine	88	3	85
Metabolism	4	......	4
Nephrology	10	......	10
Neurobiology	4	......	4
Neurological surgery	21	......	21
Neurology	88	2	86
Neurology/neuropathology	1	......	1
Neurosciences	10	......	10
Neurosurgery	8	......	8
Nuclear medicine	4	......	4
Nursing	37	34	3
Nursing education	1	......	1
Obstetrics	2	......	2
Obstetrics/gynecology	101	3	98
Occupational health	3	1	2
Occupational therapy	4	4	......
Ophthalmology	95	5	90
Oral biology	4	3	1
Oral pathology	5	3	2
Oral radiology	1	1	......
Oral surgery	6	5	1
Orthodontics	5	4	1
Orthopedic surgery	36	2	34
Orthopedic surgery and rehabilitation	3	......	3
Orthopedics	9	......	9
Otorhinolaryngology	93	3	90
Pediatrics	102	3	99
Pedodontics	3	2	1
Periodontology	1	1	......
Pharmaceutical chemistry	6	1	5
Pharmaceutical sciences	3	......	3
Pharmaceutics	12	1	11
Pharmacy	34	6	28
Pharmacy administration	1	......	1
Physical diagnosis	1	......	1
Physical medicine	5	2	3
Physical medicine and rehabilitation	21	......	21
Physical therapy	6	6	......
Physiological hygiene	1	......	1
Plastic surgery	4	......	4
Postgraduate medical education	1	......	1
Preventive and social medicine	3	1	2
Preventive medicine	11	2	9
Preventive medicine and public health	8	2	6
Primary health care	1	......	1
Prosthodontics	3	2	1
Psychiatry	98	8	90
Psychiatry and behavioral science	3	......	3
Psychiatry and neurology	3	......	3
Psychobiology	1	......	1
Public health	9	4	5
Public health administration	1	......	1
Public health and epidemiology	3	1	2
Pulmonary disease	79	3	76
Radiology	93	7	86
Rehabilitation medicine	24	3	21
Rheumatology	1	......	1
Small animal surgery	2	2	......

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
Surgery	107	7	100
Surgical research laboratory	1	......	1
Therapeutic radiology	11	......	11
Tropical med/medical micro/parisitology	2	......	2
Tropical medicine	1	......	1
Tropical medicine and public health	1	......	1
Urban health	1	......	1
Urology	34	3	31
Veterinary anatomy	6	2	4
Veterinary clinical science	1	......	1
Veterinary medicine	8	3	5
Veterinary microbiology	2	......	2
Veterinary obstetrics/gynecology	1	......	1
Veterinary parasitology	4	......	4
Veterinary pathobiology	1	......	1
Veterinary pathology	7	1	6
Veterinary physiology	4	......	4
Veterinary preventive medicine	1	......	1
Veterinary science	11	5	6
Veterinary surgery	1	......	1
Vivarial medicine	1	1	......
Psychology, total	259	50	209
Animal behavior	1	......	1
Child development	16	7	9
Child psychology	1	......	1
Clinical psychology	5	1	4
Counseling psychology	1	......	1
Educational psychology	19	5	14
Experimental psychology	7	2	5
Guidance	2	......	2
Human development	7	1	6
Industrial and organizational psychology	1	......	1
Medical psychology	1	......	1
Mental health	2	......	2
Physiological psychology	3	......	3
Psychology	190	31	159
Psychology and education	1	......	1
Social psychology	4	3	1
Social sciences	1,115	398	717
Agricultural economics, total	41	11	30
Agricultural economics	35	8	27
Agricultural economics and sociology	4	2	2
Agricultural economics and economics	2	1	1
Anthropology, total	99	29	70
Anthropology	97	28	69
Archeology	1	1	......
Biocultural anthropology	1	......	1
Economics (except agriculture)	182	54	128
Business economics	1	......	1
Consumer sciences	2	2	......
Economics	164	50	114
Economics and business administration	2	......	2
Industrial relations	5	2	3
Medical economics	1	......	1
Mineral economics	2	......	2
Pharmaceutical economics	1	......	1
Political economy	3	......	3
Resource economics	1	......	1
Geography, total	85	36	49
Geography	84	36	48
Geography and anthropology	1	......	1
History and philosophy of science, total	28	1	27
History and philosophy of science	6	......	6
History of health sciences	1	......	1
History of medicine	6	......	6
History of science	9	1	8
Logic and methodology of science	1	......	1
Philosophy of science	5	......	5
Linguistics, total	153	58	95
Biocommunications	5	......	5
Communication	18	10	8
Communication disorders	6	3	3
Communicative disorders	5	3	2
Linguistics	47	7	40
Mass communication	3	3	......
Psycholinguistics	1	......	1
Sensory communication	1	......	1
Speech	20	9	11
Speech and hearing science	24	9	15
Speech pathology	23	14	9
Political science, total	203	84	119
African affairs	2	2	......
American studies	1	1	......
Government	23	10	13
Government and foreign affairs	2	1	1
International affairs	2	1	1

Area, field of science, and departmental title	Total	Master's departments	Doctorate departments
International relations	5	2	3
International studies	2	1	1
Political science	139	50	89
Politics	5	2	3
Public administration	15	11	4
Public affairs	2	2	......
Public policy	5	1	4
Sociology, total	236	89	147
Afro-American studies	1	1	......
Asian studies	5	4	1
City planning	4	3	1
Community studies	3	2	1
Demography	1	1	......
Development sociology	1	......	1
East Asian studies	1	1	......
Environmental studies	3	1	2
Family life	6	2	4
Folklore	1	......	1
Interdisciplinary studies	1	......	1
International service	1	......	1
Labor and industrial relations	2	......	2
Latin American studies	4	3	1
Near Eastern studies	1	......	1
Planning and development	1	1	......
Population studies	4	......	4
Regional planning	6	3	3
Regional science	3	1	2
Rural sociology	3	......	3
Social relations	2	1	1
Social sciences	6	......	6
Social studies	2	......	2
Sociology	141	44	97
Urban affairs	4	3	1
Urban planning	16	10	6
Urban studies	13	8	5
Sociology and anthropology, total	26	13	13
Sociology and anthropology	26	13	13
Social sciences, n.e.c., total	62	23	39
Behavioral sciences	11	1	10
Biobehavioral sciences	1	......	1
Criminology	5	2	3
Forensic sciences	1	1	......
Human behavior	2	......	2
Organizational behavior	1	1	......
Police science and administration	1	1	......
Science education	6	......	6
Social welfare	3	2	1
Social work	29	15	14
Socio-medical sciences	2	......	2





The 1974 survey package was mailed to 355 Survey Coordinators in graduate and medical schools on November 27, 1974. The original closeout data was set for January 31, 1975, but only 20 percent of the institutions had responded by then. Intensive followup with nonrespondent institutions continued until actual closeout on June 23, 1975. As stated earlier, only one institution, accounting for 24 departments, failed to respond in 1974.

Charts I-1 and I-2 compare the institutional and departmental response rates for both medical and graduate schools. In general, medical schools responded earlier than other graduate institutions, and by March 15th, 90 percent of all the institutions had returned some portion of their total responses. Only 80 percent of the departments, however, were accounted for by that date, and it was necessary to extend the closeout date in order to approximate the goal of a 100-percent institutional response rate.

There were two kinds of departmental nonresponse: (1) Incomplete response when a department returned a questionnaire but left some items blank, and (2) total nonresponse when the department did not return a questionnaire. In the latter case, if the department responded in 1973, the department's 1974 response was imputed based on the characteristics prevailing in that field of science in all other institutions in 1974. If the department did not respond in 1973, no imputation was attempted, and the department was considered a nonrespondent.

Table I-4 indicates the minimal rate of imputation necessary for incomplete departmental response for selected totals on the 1974 questionnaire. For instance, data in column J, line 7, "Other" types of support for first-year full-time students, had the highest imputation rate, amounting to only 1.07 percent, and column B, line 9, total full-time students receiving NIH support,

Table I-4. Imputation rates for selected data items for incomplete response, GSSSP survey: 1974

5. FULL-TIME GRADUATE STUDENTS			STUDENTS RECEIVING FINANCIAL ASSISTANCE								SELF SUPPORTED STUDENTS (INCLUDING LOANS AND FAMILY SOURCES)	TOTAL FOR ALL SOURCES (SUM OF COLUMNS (A) THRU (I))
			FEDERAL SOURCES (EXCLUDING LOANS)					NON-FEDERAL SOURCES				
				HEW								
MECHANISMS OF SUPPORT	LEVEL OF STUDY		DEPT. OF DEFENSE (A)	NATIONAL INSTITUTES OF HEALTH (B)	OTHER HEW (C)	NATIONAL SCIENCE FOUNDATION (D)	OTHER FEDERAL SOURCES (E)	INSTITUTIONAL SUPPORT a/ (F)	FOREIGN SOURCES (G)	OTHER U.S. SOURCES b/ (H)	(I)	(J)
GRADUATE FELLOWSHIPS AND TRAINEESHIPS	FIRST YEAR	(1)										0.57
	BEYOND FIRST	(2)										0.55
GRADUATE RESEARCH ASSISTANTSHIPS	FIRST YEAR	(3)										0.45
	BEYOND FIRST	(4)										0.36
GRADUATE TEACHING ASSISTANTSHIPS	FIRST YEAR	(5)										0.32
	BEYOND FIRST	(6)										0.23
OTHER TYPES OF SUPPORT	FIRST YEAR	(7)										1.07
	BEYOND FIRST	(8)										0.80
TOTAL		(9)	0.31	0.10	0.12	0.27	0.57	0.40	0.29	0.38	0.37	0.00
OF LINE (9) HOW MANY WERE WOMEN?	FIRST YEAR	(10)										0.60
	BEYOND FIRST	(11)										0.79
FOREIGN STUDENTS		(12)	OF THE FULL-TIME GRADUATE STUDENTS SHOWN IN LINE (9), COLUMN (J), HOW MANY WERE FOREIGN STUDENTS?									0.51

6. PART-TIME GRADUATE STUDENTS			7. G.I. BENEFITS	8. POSTDOCTORALS AND/OR RESEARCH ASSOCIATES				
FALL 1974			OF YOUR TOTAL GRADUATE ENROLLMENT (FULL- AND PART-TIME) HOW MANY RECEIVED ANY G.I. BENEFITS?	FALL 1974				
				SOURCE OF SUPPORT			TOTAL	OF COL. (D), HOW MANY ARE RECENT DOCTORALS? c/
				U.S. GOVERNMENT		NON-U.S. GOVT.		
FIRST YEAR	BEYOND FIRST	TOTAL		FELLOWSHIPS/ TRAINEESHIPS	RESEARCH ASSOCIATES			
(A)	(B)	(C)		(A)	(B)	(C)	(D)	(E)
		0.00	0.41				0.13	

a/ INCLUDES INSTITUTIONS AND STATE AND LOCAL GOVERNMENTS.

b/ INCLUDES SUPPORT FROM NONPROFIT INSTITUTIONS, INDUSTRY, AND ALL OTHER U.S. SOURCES.

c/ SINCE AND INCLUDING [illegible].

Source: National Science Foundation

and enrollment status, GSSSP survey: 1974

Area of science	Number of nonrespondent departments	Total in survey			Total enrollment imputed			Imputation rates (Imputed enrollment as percent of total)		
		Full time	Part time	Postdoctorals	Full time	Part time	Postdoctorals	Full time	Part time	Postdoctorals
Total, all areas	81	195,196	70,564	16,776	1,112	1,185	449	0.57	1.68	2.68
Engineering	7	34,3[illegible]	23,817	1,086	68	300	0	.20	1.26	.00
Physical sciences	10	29,200	4,931	4,121	315	285	54	1.08	5.78	1.31
Mathematical sciences	2	13,027	6,513	140	157	30	0	1.21	.46	.00
Life sciences	41	52,135	10,736	10,635	213	179	373	.41	1.67	3.51
Psychology	2	18,340	5,282	308	48	0	0	.26	.00	.00
Social sciences	19	48,183	19,285	486	311	391	22	.65	2.03	4.53

Source: National Science Foundation.

Table I-6. Imputation rates for selected data items for total departmental nonresponse, GSSSP survey: 1974

5. FULL-TIME GRADUATE STUDENTS			STUDENTS RECEIVING FINANCIAL ASSISTANCE								SELF SUPPORTED STUDENTS (INCLUDING LOANS AND FAMILY SOURCES)	TOTAL FOR ALL SOURCES (SUM OF COLUMNS (a) THRU (i))
			FEDERAL SOURCES (EXCLUDING LOANS)					NON-FEDERAL SOURCES				
				HEW								
MECHANISMS OF SUPPORT	LEVEL OF STUDY		DEPT. OF DEFENSE (a)	NATIONAL INSTITUTES OF HEALTH (b)	OTHER HEW (c)	NATIONAL SCIENCE FOUNDATION (d)	OTHER FEDERAL SOURCES (e)	INSTITUTIONAL SUPPORT a/ (f)	FOREIGN SOURCES (g)	OTHER U.S. SOURCES b/ (h)	(i)	(j)
GRADUATE FELLOWSHIPS AND TRAINEESHIPS	FIRST YEAR	(1)										0.70
	BEYOND FIRST	(2)										0.57
GRADUATE RESEARCH ASSISTANTSHIPS	FIRST YEAR	(3)										0.36
	BEYOND FIRST	(4)										0.43
GRADUATE TEACHING ASSISTANTSHIPS	FIRST YEAR	(5)										0.62
	BEYOND FIRST	(6)										0.70
OTHER TYPES OF SUPPORT	FIRST YEAR	(7)										0.65
	BEYOND FIRST	(8)										0.49
TOTAL		(9)	0.25	0.07	0.71	0.84	0.82	0.61	0.99	0.22	0.59	0.57
OF LINE (9) HOW MANY WERE WOMEN?	FIRST YEAR	(10)										0.56
	BEYOND FIRST	(11)										0.48
FOREIGN STUDENTS		(12)	OF THE FULL-TIME GRADUATE STUDENTS SHOWN IN LINE (9), COLUMN (j), HOW MANY WERE FOREIGN STUDENTS?									0.59

6. PART-TIME GRADUATE STUDENTS			7. G.I. BENEFITS	8. POSTDOCTORALS AND/OR RESEARCH ASSOCIATES				
FALL 1974			OF YOUR TOTAL GRADUATE ENROLLMENT (FULL- AND PART-TIME) HOW MANY RECEIVED ANY G.I. BENEFITS?	FALL 1974				
				SOURCE OF SUPPORT			TOTAL	OF COL. (d), HOW MANY ARE RECENT DOCTORALS? c/
				U.S. GOVERNMENT		NON-U.S. GOVT.		
FIRST YEAR (a)	BEYOND FIRST (b)	TOTAL (c)		FELLOWSHIPS/TRAINEESHIPS (a)	RESEARCH ASSOCIATES (b)	(c)	(d)	(e)
		1.68	0.79				2.68	

a/ Includes institutions and state and local governments.

b/ Includes support from nonprofit institutions, industry, and all other U.S. sources.

c/ Since and including [illegible].

Source: National Science Foundation

of imputation for the 81 totally nonresponding departments where data were available in 1973, by each area of science and enrollment status. Postdoctorals in the social sciences had the highest rate of imputation, 4.53 percent. The rate for full-time students was only 0.57 percent and for part-time students, 1.68 percent. The rates of imputation for these same 81 departments are shown for selected totals on the 1974 questionnaire on table I-6.

Methods of Calculating Trends

Index, 1967-74. The indexing methodology developed by NSF to calculate long-term trends in selected features of enrollment and postdoctoral appointments was constructed by linking several data series together to give a continuous 8-year indicator. The first four index numbers for each trend item selected were derived from the "matched" series for 1967 through 1970 shown as Time Series Number 1 on table I-7. With 1967 as the base year, the following formula was used to calculate the index for each of the 4 years; 1967-1970:

$$\frac{\text{(Enrollment in matched departments in year X)}}{\text{(Enrollment in matched departments in 1967)}}\ 100.0 = \text{Index for year X}$$

The next matched series, 1969 through 1971, or Time Series Number 2, was used as the basis for calculating the 1971 index; the series for 1971-72, or Time Series Number 3, was the basis for the 1972 index; the 1972-73 set, Time Series Number 4, was the basis for 1973's index; and the last 1973-74 set, Time Series Number 5, formed the basis for the 1974 index number. For example, to construct the index numbers for federally supported full-time graduate students for the years 1967-74, as shown on the chart on p. 5, five sets of matched data were used. With the base year 1967 assigned an index number of 100.0, each of the years 1967 through 1970 was assigned an index number based on the formula shown above. Thus the index for 1970, based on Time Series Number 1, was calculated as follows:

$$\frac{(41{,}399)}{(47{,}909)}\ 100.0 = 86.4$$

full-time graduate enrollment: 1967-74

Year	Index number	Time series number				
		1	2	3	4	5
1967	100.0	47,909				
1968	98.1	47,002				
1969	92.2	44,184	48,373			
1970	86.4	41,399	45,640			
1971	78.1		41,263	51,954		
1972	70.6			46,955	43,907	
1973	61.3				38,126	40,152
1974	59.3					38,820
Number of matched departments		[1]2,236	[2]2,579	[3]2,706	[4]4,112	[5]5,939

[1] *Graduate Student Support and Manpower Resources in Graduate Science Education, Fall 1970* (NSF 71-27), Table C-14A.

[2] Ibid, *Fall 1971* (NSF 73-304), Table C-17A.

[3] *Graduate Science Education: Student Support and Postdoctorals, Fall 1972* (NSF 73-315), Table A-13.

[4] *Graduate Science Education: Student Support and Postdoctorals, Fall 1973, Detailed Statistical Tables, Appendix III* (NSF 74-318A), Table D-8.

[5] Ibid, *Fall 1974, Detailed Statistical Tables, Appendix III* (NSF 75-322), Table F-9.

Source: National Science Foundation.

To calculate the index numbers for each of the remaining years in the series, the following formula was used:

$$\frac{\text{(Enrollment in matched departments in year X)}}{\text{(Enrollment in matched departments in year X-1)}} \text{ Index number of preceding year}$$

= Index number for year X

For example, the index number for 1971, based on Time Series Number 2, is calculated as follows:

$$\frac{(41,263)}{(45,640)}\ 86.4 = 78.1$$

"Matched" departments. A department for which data were available in each of the years in a particular time series is considered a "matched" department. In appendix III, the *Detailed Statistical Tables* (NSF 75-322) published in October 1975, data from the 1974 survey were linked to three different time series:

(1) The 1971-74 series represented data from 3,785 matched graduate departments. (Since the 1972 survey form requested 1971 data on several key items—level of study of graduate students, Federal or non-Federal support, and postdoctorals—this series can be used to form a bridge between the traineeship applications of 1967-71 and the full-scale survey that began in 1972.)

(2) The 1972-74 series represented data from the same 3,785 matched departments as in (1) above but with more extensive details; every comparable item on the questionnaire was examined for trend purposes.

(3) The 1973-74 series was based on replies from 5,939 matched departments, illustrating the expansion in coverage and consistency of reporting.

Table I-8 shows that the 1971-74 series represented only 50 percent of all the departments reporting in 1974, covering only 31 percent of the life science departments and only 62 percent of the social science departments. This relatively low representation can be traced to the clinical sciences and graduate programs in social work, where coverage in the early years was virtually nonexistent. In the 1973-74 series, matched departments represented 79 percent of the total number reporting, a vast improvement over the earlier matched set. Here, coverage improved in the life sciences to 78 percent of all departments and in the social sciences to 71 percent.

Enrollment in matched departments is compared with enrollment in all departments in table I-9. In the first set for 1971-74, matched department enrollment amounted to 71 percent of the total and in the 1973-74 series, to 80 percent. As expected, life science enrollment in matched departments increased from 62 percent of the total in the 1971-74 series to 77 percent in the 1973-74 series; social science enrollment changed from 59 percent to 67 percent in the two groups. In other words, as coverage stabilizes, the need for the matching of departments will disappear except for the earlier years, where indexing is the only satisfactory method for linking the older incomplete data base to the new.

G. I. Benefits

The National Advisory Panel, consisting of prominent persons expert in graduate education, that was convened to provide guidance to the contractor during the fall 1973 survey cycle recommended that an additional item be included in future survey forms—the number of full- and part-time graduate students receiving G.I. benefits. This became Item 7 on the fall 1974 questionnaire, with instructions to department chairmen to coordinate their responses with their institution's Office of Veterans Affairs on the number receiving any G.I. Bill assistance, regardless of whether it was the major source of their support. Since 1974 was the first year of this collection effort, chairmen may have experienced some difficulty in compiling the statistics. The total number reported, 10,695 students, represented only 4 percent of all graduate students in Ph. D.-granting institutions in the sciences and engineering. The Veterans Administration, however, reported a total enrollment at all levels of graduate work in all academic fields of nearly 200,000 students, or 12 percent of all college-level students receiving G.I. benefits.[2]

Of the 7,505 departments in the 1974 survey, only 293, or 4 percent, failed to provide data for this item and were imputed, as shown on table I-10.

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[2] See Veterans Administration, *Information Bulletin* DVB IB 20-75-9, appendix B, table 1 (Washington, D.C., June 1975).

with number of departments reporting for 1974,
by area and field of science

Area and field of science	Total graduate departments, 1974	Number of matched departments			
		1971-74	As percent of total, 1971-74	1973-74	As percent of total, 1973-74
Total	7,505	3,785	50.4	5,939	79.1
Engineering	1,011	765	75.7	856	84.7
Aeronautical	35	31	88.6	33	94.3
Agricultural	46	42	91.3	44	95.7
Chemical	113	98	86.7	106	93.8
Civil	139	103	74.1	113	81.3
Electrical	141	119	84.4	126	89.4
Engineering science	61	43	70.5	47	77.0
Industrial	106	64	60.4	79	74.5
Mechanical	143	114	79.7	124	86.7
Metallurgical	65	53	81.5	59	90.8
Mining	21	17	81.0	17	81.0
Nuclear	32	24	75.0	30	93.8
Petroleum	15	11	73.3	12	80.0
Engineering, n.e.c.	94	46	48.9	66	70.2
Physical sciences	748	625	83.6	667	89.2
Astronomy	30	26	86.7	27	90.0
Atmospheric sciences	26	21	80.8	24	92.3
Chemistry	239	214	89.5	218	91.2
Geosciences	184	138	75.0	162	88.0
Oceanography	33	25	75.8	27	81.8
Physics	236	201	85.2	209	88.6
Mathematical sciences	364	291	79.9	319	87.6
Applied mathematics	87	58	66.7	69	79.3
Mathematics	229	197	86.0	205	89.5
Statistics	48	36	75.0	45	93.8
Life sciences	4,008	1,233	30.8	3,120	77.8
Agriculture	309	219	70.9	251	81.2
Biological sciences	1,500	967	64.5	1,231	82.1
Basic medical sciences	886	562	63.4	743	83.9
Anatomy	103	80	77.7	96	93.2
Biochemistry	157	116	73.9	139	88.5
Biophysics	41	22	53.7	28	68.3
Microbiology	172	113	65.7	141	82.0
Pathology	142	55	38.7	118	83.1
Pharmacology	137	80	58.4	104	75.9
Physiology	134	96	71.6	117	87.3
Other biosciences	614	405	66.0	488	79.5
Biology	138	102	73.9	115	83.3
Biometry and biostatistics	29	10	34.5	18	62.1
Botany	90	72	80.0	80	88.9
Cell biology	27	15	55.6	20	74.1
Ecology	12	8	66.7	11	91.7
Entomology and parasitology	41	37	90.2	40	97.6
Genetics	51	29	56.9	44	86.3
Nutrition	79	37	46.8	50	63.3
Zoology	70	53	75.7	59	84.3
Biosciences, n.e.c.	77	42	54.5	51	66.2
Health sciences	2,199	47	2.1	1,638	74.5
Clinical medicine	1,930	(1)	(1)	1,537	79.6
Anesthesiology	93			82	88.2
Cardiology	99			75	75.8
Clinical pharmacology	21			18	85.7
Endocrinology	94			63	67.0
Gastroenterology	86			69	80.2
Hematology	92			71	77.2
Neurology	104			86	82.7
Obstetrics and gynecology	105			90	85.7
Ophthalmology	95			87	91.6
Otorhinolaryngology	95			85	89.5
Pediatrics	108			93	86.1
Preventive medicine and community health	156			109	69.9
Psychiatry	107			95	88.8
Pulmonary disease	85			66	77.6
Radiology	116			95	81.9
Surgery	218			177	81.2
Clinical medicine, n.e.c.	256			173	68.8
Other health related	269	47	17.5	101	37.5
Nursing	38	2	5.3	10	26.3
Pharmaceutical sciences	60	18	30.0	29	48.3
Veterinary sciences	55	21	38.2	31	56.4
Health related, n.e.c.	116	6	5.2	31	26.7

as percent of graduate enrollment in all departments: 1974

Area and field of science	Total graduate enrollment, 1974	Graduate enrollment in 1974 in matched departments			
		1971-74	As percent of total, 1971-74	1973-74	As percent of total, 1973-74
Total number of departments	7,505	3,785	50.4	5,939	79.1
Total graduate enrollment	265,760	188,431	70.9	211,826	79.7
Engineering	58,128	45,086	77.6	50,671	87.2
Aeronautical	1,398	1,276	91.3	1,388	99.3
Agricultural	693	648	93.5	683	98.6
Chemical	4,440	3,909	88.0	4,236	95.4
Civil	9,998	7,772	77.7	8,706	87.1
Electrical	14,921	12,403	83.1	13,655	91.5
Engineering science	2,255	1,629	72.2	1,845	81.8
Industrial	7,887	4,854	61.5	5,642	71.5
Mechanical	7,914	6,435	81.3	7,108	89.8
Metallurgical and materials	2,127	1,924	90.5	2,042	96.0
Mining	398	324	81.4	324	81.4
Nuclear	1,491	1,125	75.5	1,431	96.0
Petroleum	379	240	63.3	248	65.4
Engineering, n.e.c.	4,227	2,547	60.3	3,363	79.6
Physical sciences	34,131	30,567	89.6	31,509	92.3
Astronomy	602	537	89.2	549	91.2
Atmospheric sciences	1,002	836	83.4	911	90.9
Chemistry	13,665	12,952	94.8	13,019	95.3
Geosciences	6,711	5,505	82.0	5,943	88.6
Oceanography	1,812	1,267	69.9	1,415	78.1
Physics	10,339	9,470	91.6	9,672	93.5
Mathematical sciences	19,540	16,526	84.6	17,742	90.8
Applied mathematics	5,822	4,476	76.9	4,935	84.8
Mathematics	11,841	10,731	90.6	11,049	93.3
Statistics	1,877	1,319	70.3	1,758	93.7
Life sciences	62,871	39,040	62.1	48,400	77.0
Agriculture	9,591	7,267	75.8	8,434	87.9
Biological sciences	38,202	29,401	77.0	32,637	85.4
Basic medical sciences	14,244	11,054	77.6	12,641	88.7
Anatomy	1,065	929	87.2	1,038	97.5
Biochemistry	3,679	3,119	84.8	3,478	94.5
Biophysics	809	581	71.8	587	72.6
Microbiology	3,803	2,840	74.7	3,349	88.1
Pathology	1,010	738	73.1	965	95.5

Area and field of science	Total graduate departments, 1974	Number of matched departments			
		1971-74	As percent of total, 1971-74	1973-74	As percent of total, 1973-74[1]
Psychology	259	176	68.0	190	73.4
Social sciences (except psychology)	1,115	695	62.3	787	70.6
Agricultural economics	41	36	87.8	39	95.1
Anthropology	99	80	80.8	85	85.9
Economics (except agriculture)	182	136	74.7	144	79.1
Geography	85	78	91.8	80	94.1
History and philosophy of science	28	15	53.6	24	85.7
Linguistics	153	47	30.7	63	41.2
Political science	203	141	69.5	153	75.4
Sociology	236	140	59.3	165	69.9
Sociology and anthropology	26	17	65.4	20	76.9
Social sciences, n.e.c.	62	5	8.1	14	22.6

[1] Departments were not matched in these fields as data were not collected until 1973.

Source: National Science Foundation.

Area and field of science	Total graduate enrollment, 1974	Graduate enrollment in 1974 in matched departments			
		1971-74	As percent of total, 1971-74	1973-74	As percent of total, 1973-74
Basic medical Sciences Con.					
Pharmacology	1,557	1,053	67.6	1,245	80.0
Physiology	2,231	1,794	77.3	1,979	85.3
Other biosciences	23,958	18,347	76.6	19,996	83.5
Biology	7,172	5,922	82.6	6,312	88.0
Biometry and biostatistics	508	191	37.6	288	56.7
Botany	2,642	2,349	88.9	2,497	94.5
Cell biology	521	381	73.1	427	82.0
Ecology	503	451	89.7	498	99.0
Entomology and parasitology	1,281	1,221	95.3	1,268	99.0
Genetics	784	609	77.7	683	87.1
Nutrition	2,823	1,566	55.5	1,949	69.0
Zoology	4,072	3,277	80.5	3,485	85.6
Biosciences, n.e.c.	3,652	2,380	65.2	2,589	70.9
Health sciences	15,078	2,372	15.7	7,329	48.6
Clinical medicine	6,570	(¹)	(¹)	4,104	62.5
Anesthesiology	59			59	100.0
Cardiology	46			40	87.0
Clinical pharmacology	26			3	11.5
Endocrinology	32			18	56.3
Gastroenterology	50			50	100.0
Hematology	28			27	96.4
Neurology	258			185	71.7
Obstetrics and gynecology	70			28	40.0
Ophthalmology	44			44	100.0
Otorhinolaryngology ..	107			95	88.8
Pediatrics	167			61	36.5
Preventive medicine and community health ...	3,240			1,905	58.8
Psychiatry	553			392	70.9
Pulmonary disease	58			57	98.3
Radiology	210			147	70.0
Surgery	131			67	51.1
Clinical medicine, n.e.c.	1,491			926	62.1
Other health related	8,508	2,372	15.7	3,225	37.9
Psychology	23,622	17,736	75.1	18,647	78.9
Social sciences (except psychology	67,468	39,476	58.5	44,857	66.5
Agricultural economics ..	1,636	1,438	87.9	1,602	97.9
Anthropology	5,606	4,978	88.8	5,130	91.5
Economics (except agriculture)	10,930	8,493	77.7	9,194	84.1
Geography	2,768	2,581	93.2	2,597	93.8
History and philosophy of science	289	209	72.3	234	81.0
Linguisitics	7,055	2,155	30.5	2,950	41.8
Political science	15,093	9,495	62.9	10,993	72.8
Sociology	14,107	8,897	63.1	9,872	70.0
Sociology and anthropology	1,412	1,117	79.1	1,168	82.7
Social sciences, n.e.c. ...	8,572	113	1.3	1,117	13.0

[1] Departments were not matched in these fields as data were not collected until 1973.

Source: National Science Foundation.

Table I-10.—Nonrespondent departments to Item 7, students receiving G.I. benefits, by area of science: 1974

Area of science	Number of nonrespondent departments to Item 7	Total number of departments in survey	Imputation rate (percent)
Total, all areas	293	7,505	3.9
Engineering	72	1,011	7.1
Physical sciences	36	748	4.8
Mathematical sciences	36	364	9.9
Life sciences	59	4,008	1.5
Psychology	20	259	7.7
Social sciences	70	1,115	3.9

Source: National Science Foundation.

Data Comparability Between the NSF Survey and Other Surveys of Graduate Enrollment

The National Center for Education Statistics (NCES) conducts an annual survey entitled Students Enrolled for Advanced Degrees (SEAD), ,as part of the Higher Education General Information Survey (HEGIS). This survey covers enrollment in all institutions that offer an advanced degree, as compared with the GSSSP, which covers only those institutions that offer a Ph. D. in science or engineering. The most recent NCES publication of survey results presented fall 1973 graduate enrollment in both master's and Ph. D.-granting institutions.[3] Table I-11 provides 1974 survey results in advance of their publication, and illustrates that the GSSSP covered 95 percent of all graduate science enrollment in all institutions of higher education. However, the 1974 GSSSP accounted for 48 percent more social science students and 4 percent more engineering students than did the SEAD, due perhaps to definitional differences in the taxonomy. The lowest NSF field coverage was in the mathematical sciences and in psychology, where only 72 percent of each was accounted for in Ph. D.-granting institutions.

The definition of enrollment status differs considerably between the NCES and NSF surveys. According to the HEGIS instructions, "a full-time student is one whose academic load in terms of course work or other activity (such as thesis, research, or required teaching) is at least 75% of the load normally required of such students. Time spent by teaching fellows should be included only if such teaching is performed as a requirement for a degree. Employment which is not a part of the prescribed activity for an advanced degree or time spent on work required because of lack of undergraduate background should not be counted as time spent on academic requirements. A part-time student is one who is carrying an academic schedule of less than three-fourths the normal load." The GSSSP defines a full-time graduate student as "a student enrolled for credit in a master's or Ph. D. program (not a regular staff member) who is engaged full time in training activities in his field of science; these activities may embrace any appropriate combination of study, teaching, and research, depending upon your Institution's Own Policy." And, "a part-time graduate student is defined as a student enrolled in a master's or Ph.D. program who is not pursuing graduate work full time. . . ." In summary, NCES counts a student as full time if over 75 percent of his workload is spent in pursuit of his graduate work, while NSF considers a student full time if *all* of his time is devoted to graduate work, and if the institution considers him full time. Therefore, when comparing science and engineering (S/E) graduate enrollment from the two surveys, it should be recognized that full-time enrollment data as reported to NSF will always be higher than that reported to NCES. Also, master's-granting institutions are not reported in the NSF enrollment totals.

The Council of Graduate Schools also conducts an annual survey of graduate enrollment in all fields through its 316 member institutions, as discussed in the technical notes of the previous report, where differences in the survey characteristics were described in detail. Results of the two surveys, as they apply to S/E enrollment in Ph. D.-granting institutions, are illustrated in table I-12. Both surveys show that in certain comparable areas of science, both graduate enrollment in Ph. D.-granting institutions and first-year enrollment were on the rise between 1973 and 1974. However, NSF reported a slight increase in enrollment in the physical and mathematical sciences, while CGS reported a decline. Lack of comparability in the taxonomy or a difference in the response rates could account for this difference.

Table I-11.—Graduate enrollment reported in NSF's 1974 survey compared with 1974 enrollment for advanced degrees reported in NCES survey, by area of science and department degree level

Area of science	Enrollment for advanced degrees, fall 1974[1]	Graduate enrollment in 355 doctorate-granting institutions in 1974[2]					
		All departments		Doctorate departments		Master's departments	
		Number	Percent of total	Number	Percent of total	Number	Percent of total
Total, all areas	281,051	265,760	94.6	221,303	78.7	44,457	15.8
Engineering	56,001	58,128	103.8	49,546	88.5	8,582	15.3
Physical sciences	34,936	34,131	97.7	31,469	90.1	2,662	7.6
Mathematical sciences	27,118	19,540	72.1	15,970	58.9	3,570	13.2
Life sciences	[3]84,603	62,871	74.3	52,727	62.3	10,144	12.0
Psychology	32,794	23,622	72.0	21,190	64.6	2,432	7.4
Social sciences	45,599	67,468	148.0	50,401	110.5	17,067	37.4

[1] Based on NCES, Survey of Students Enrolled for Advanced Degrees, Fall 1974.
[2] Based on NSF's Survey of Graduate Science Student Support and Postdoctorals, Fall 1974.
[3] Includes health professions.
Source: National Science Foundation.

Table I-12.—Graduate enrollment as reported by the Council of Graduate Schools compared with NSF's GSSSP in selected areas of science: 1973-74 (Percent change)

Area of science	Total graduate enrollment		First-year graduate enrollment	
	CGS	GSSSP	CGS	GSSSP
Engineering	3.3	3.3	12.1	2.7
Physical sciences[1]	-1.7	.8	4.0	4.3
Biological sciences[2]	[3]6.6	10.4	[3]10.0	17.2
Social sciences	[4]9.9	6.6	[4]15.0	11.2

[1] Includes mathematical sciences.
[2] Includes psychology.
[3] Includes home economics (CGS only).
[4] Includes business and history (CGS only).
Note: Percent changes shown are for graduate departments reporting in 1973 and 1974.
Source: NSF Survey of Graduate Science Student Support and Postdoctorals, Fall 1974, and Council of Graduate Schools, *Communicator: Special Report #4*, April 1975.

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[3] See Department of Health, Education, and Welfare, National Center for Education Statistics, *Students Enrolled for Advanced Degrees, Fall 1973* (NCES 76-111) (Washington, D.C. 20402: Supt. of Documents, U.S. Government Printing Office, 1976).

[4] See National Science Foundation, *Science Resources Studies Highlights*, "Graduate Enrollment Up in Biological Sciences, Fall 1974" (NSF 74-321) (Washington, D.C., Dec. 31, 1974).

Comparison of Results from the 1974 Quick Response Survey with the GSSSP Survey

A Quick Response Survey (QRS) was introduced into the survey cycle in early fall 1974 in order to obtain estimates of annual changes in the level of graduate science and engineering enrollment at an early period in the academic year and to make this information available to data users several months in advance of publication of the final GSSSP tabulations.[4]

The 1974 QRS involved a sample of 360 departments and was designed to provide national enrollment estimates with specified levels of precision. Table I-13 compares the estimated rates of change that were derived from the QRS with similar rates observed for full-time enrollment in each area of science from the full-scale survey. Also given in this table are the 95 percent confidence interval estimates computed on the QRS estimates.

The estimate of change between 1973 and 1974 in full-time enrollment based on the early fall estimates came very close to the actual change as reported in the full-scale survey. However, the sample predicted a slight decrease in both engineering and psychology enrollment, which did not prove to be true in the final results. Also, the enrollment totals predicted by the sample proved to be lower than the final figures in every area except the biological sciences. In an attempt to collect more reliable estimates, the sample was redesigned for the next survey cycle and was expanded to nearly 1,300 graduate departments. Results of the 1975 QRS survey have now been published, showing another 4-percent increase in full-time enrollment from 1974 to 1975.[5] Comparisons with the final 1975 tabulations confirm that the goal of greater reliability was achieved.[6]

Table I-13.—QRS results, compared with GSSSP results in full-time graduate enrollment, by area of science: 1973-74

Area of science	Estimate, QRS		Range of percent change at 95 percent confidence level	GSSSP	
	Number	Percent change 1973-74		Number	Percent change 1973-74
Total, all areas	171,100	4.1	0.5 to 7.7	195,196	4.6
Engineering	31,400	-.8	-9.8 to 8.2	34,311	3.3
Physical and mathematical sciences	41,500	.7	-4.2 to 5.6	42,227	.4
Life sciences, total	46,200	12.7	4.2 to 21.2	52,135	10.4
Biological sciences	34,000	17.2	6.9 to 27.5	32,638	7.6
Other life sciences	12,200	2.1	-13.0 to 17.2	19,497	17.2
Psychology	14,600	-.6	-12.0 to 10.8	18,340	6.7
Social sciences	37,100	4.4	-3.1 to 11.9	48,183	3.1

Source: National Science Foundation.

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[5] See National Science Foundation, *Science Resources Studies Highlights*, "Graduate Science Enrollment in Fall 1975 is Up Again for Second Straight Year." (NSF 75-335) (Washington, D.C., Dec. 31, 1975).

[6] See National Science Foundation, *Detailed Statistical Tables. Graduate Science Education: Student Support and Postdoctorals, Fall 1975.* In preparation.

APPENDIX II

Classification of Institutions in Survey

The 355 science doctorate institutions listed here may differ from similar listings published elsewhere for the following principal reasons: (1) Differences in classifying branches, affiliates, or other organizational components of university systems; (2) variations in definitions of science and engineering fields; (3) differences in the time period covered by the classification (e.g., single year or longer period); and (4) differences in classifications based on level of degree offered or level of degree granted respectively, in a particular period. Symbols behind each name refer to the following classifications: 1) "First 20" refer to institutions chosen most frequently by NSF Fellows from 1968 through 1974; 2) D—"Developing" institutions, those which granted science Ph. D.'s beginning in 1960-61; 3) M—"Medical Schools"; 4) I—"Intermediate," all remaining institutions granting doctorates in science.

The institutions surveyed were classified as follows:

(1) *"First 20."* These institutions were selected by the most number of NSF Fellows during the period 1968-74. The NSF Graduate Fellowship Program awards its stipends to individuals who then select the graduate institutions they wish to attend. On the basis of this selection process, the number of Fellows in each year was totaled, and the first 20 institutions were then placed in rank order.

(2) *Developing.* The 98 institutions that began awarding science Ph. D.'s in academic year 1960-61 were considered to be developing graduate institutions for this report. Data for this comparison were provided by the National Center for Education Statistics.

(3) *Medical.* The 104 medical schools that awarded science Ph. D.'s were tabulated separately from their parent institutions in 1974 so that their characteristics could be examined as a group. Since data from medical schools were not as representative in earlier years as they were in 1973 and 1974, trend data for this group cannot be as meaningfully analyzed as the other categories.

(4) *Intermediate.* The 133 remaining schools that supplied data for 1974 were termed "Intermediate."

Auburn University-I
University of Alabama, Birmingham-D
University of Alabama, Huntsville-D
University of Alabama School of Medicine-M
University of Alabama, Tuscaloosa-I

ALASKA

University of Alaska-I

ARIZONA

Arizona State University-D
Northern Arizona University-D
University of Arizona-I
University of Arizona College of Medicine-M

ARKANSAS

University of Arkansas-I
University of Arkansas School of Medicine-M

CALIFORNIA

California Institute of Technology-First 20
Claremont Graduate School and University Center-I
Loma Linda University-D
Loma Linda University School of Medicine-M
Naval Postgraduate School-I
Rand Graduate Institute-D
Rosemead Graduate School Of Psychology-D
San Diego State University-D
Stanford University-First 20
Stanford University School of Medicine-M
University of California, Berkeley-First 20
University of California, Davis-I
University of California, Davis, School of Medicine-M
University of California, Irvine-D
University of California, Irvine, California College of Medicine-M
University of California, Los Angeles-First 20
University of California, Los Angeles Medical School-M
University of California, Riverside-D
University of California, San Diego-First 20
University of California, San Diego, School of Medicine-M
University of California, San Francisco Medical School-M
University of California, Santa Barbara-D
University of California, Santa Cruz-D
University of the Pacific-D
University of Santa Clara-D
University of Southern California-I
University of Southern California School of Medicine-M
U.S. International University, California Western-D

Colorado School of Mines-I
Colorado State University-I
University of Colorado-I
University of Colorado School of Medicine-M
University of Denver-I
University of Northern Colorado-D

CONNECTICUT

New England Institute-D
University of Connecticut-I
University of Connecticut School of Medicine-M
Wesleyan University-D
Yale University-First 20
Yale University School of Medicine-M

DELAWARE

University of Delaware-I

DISTRICT OF COLUMBIA

American University-I
Catholic University-I
Georgetown University-I
Georgetown University School of Medicine-M
George Washington University-I
George Washington University Medical School-M
Howard University-I
Howard University College of Medicine-M

FLORIDA

Florida Institute of Technology-D
Florida State University-I
Nova University-D
University of Florida-I
University of Florida College of Medicine-M
University of Miami-I
University of Miami School of Medicine-M
University of South Florida-D

GEORGIA

Atlanta University-D
Emory University-I
Emory University School of Medicine-M
Georgia Institute of Technology-I
Georgia State University-D
Medical College of Georgia School of Medicine-M
University of Georgia-I

University of Hawaii-I
University of Hawaii School of Medicine-M

IDAHO

Idaho State University-D
University of Idaho-D

ILLINOIS

DePaul University-D
Illinois Institute of Technology-I
Illinois State University-D
Loyola University-I
Loyola University of Chicago Stritch School of Medicine-M
Northern Illinois University-D
Northwestern University-I
Northwestern University Medical School-M
Rush Medical College-M
Southern Illinois University-I
University of Chicago-First 20
University of Chicago Pritzker School of Medicine-M
University of Health Sciences Chicago Medical School-M
University of Illinois, Chicago Circle-D
University of Illinois College of Medicine-M
University of Illinois, Urbana-First 20

INDIANA

Ball State University-D
Indiana State University-D
Indiana University-I
Indiana University School of Medicine-M
Purdue University-First 20
University of Notre Dame-I

IOWA

Iowa State University-I
University of Iowa-I
University of Iowa College of Medicine-M

KANSAS

Kansas State University-I
University of Kansas-I
University of Kansas School of Medicine-M
Wichita State University-D

KENTUCKY

University of Kentucky-I

University of Kentucky College of Medicine-M
University of Louisville-I
University of Louisville School of Medicine-M

LOUISIANA

Louisiana State University, Baton Rouge-I
Louisiana State University, New Orleans Medical School-M
Louisiana State University, Shreveport Medical School-M
Louisiana State University, New Orleans-D
Louisiana Technological University-D
Loyola University-D
Northeast Louisiana University-D
Tulane University-I
Tulane University School of Medicine-M
University of Southwestern Louisiana-D

MAINE

University of Maine-I

MARYLAND

Johns Hopkins University-First 20
Johns Hopkins University School of Medicine-M
University of Maryland-I
University of Maryland School of Medicine-M
University of Maryland Baltimore City-D
University of Maryland Baltimore County-D

MASSACHUSETTS

Boston College-I
Boston University-I
Boston University School of Medicine-M
Brandeis University-I
Clark University-I
Harvard University-First 20
Harvard Medical School-M
Lowell Technological Institute-D
Massachusetts College of Pharmacy-I
Massachusetts Institute of Technology-First 20
Northeastern University-D
Smith College-D
Tufts University-I
Tufts University School of Medicine-M
University of Massachusetts-I
University of Massachusetts Medical School-M
Woods Hole Oceanographic Institute-D
Worcester Polytechnic Institute-D

Michigan State University-First 20
Michigan Technological University-D
Oakland University-D
University of Detroit-D
University of Michigan-First 20
University of Michigan Medical School-M
Wayne State University-I
Wayne State University School of Medicine-M
Western Michigan University-D

MINNESOTA

Mayo Medical School-M
University of Minnesota-I
University of Minnesota, Minneapolis Medical School-M

MISSISSIPPI

Mississippi State University-I
University of Mississippi-I
University of Mississippi School of Medicine-M
University of Southern Mississippi-D

MISSOURI

St. Louis University-I
St. Louis University School of Medicine-M
University of Missouri, Columbia-I
University of Missouri, Columbia School of Medicine-M
University of Missouri, Kansas City-D
University of Missouri, Rolla-I
University of Missouri, St. Louis-I
Washington University-I
Washington University School of Medicine-M

MONTANA

Montana State University-I
University of Montana-D

NEBRASKA

Creighton University School of Medicine-M
University of Nebraska-I
University of Nebraska College of Medicine-M

NEVADA

University of Nevada, Reno-D

Dartmouth College-D
Dartmouth Medical School-M
University of New Hampshire-I

NEW JERSEY

College of Medicine and Dentistry of New Jersey,
  New Jersey Medical School-M
College of Medicine and Dentistry of New Jersey,
  Rutgers Medical School-M
Newark College of Engineering-D
Princeton University-First 20
Rutgers, The State University-I
Seton Hall University-D
Stevens Institute of Technology-I

NEW MEXICO

New Mexico Institute of Mining and Technology-D
New Mexico State University-I
University of New Mexico-I
University of New Mexico School of Medicine-M

NEW YORK

Adelphi University-I
Albany Medical College of Union University-M
Albert Einstein College of Medicine of Yeshiva University-M
Alfred University-I
City University of New York, Brooklyn College-D
City University of New York, City College-D
City University of New York Graduate Division-D
Clarkson College of Technology-D
Columbia University-First 20
Columbia University College of Pharmaceutical Sciences-I
Columbia University College of Physicians and Surgeons-M
Columbia University Teachers College-D
Cooper Union-D
Cornell University-First 20
Cornell University Medical College-M
Fordham University-I
Hofstra University-D
Mount Sinai School of Medicine of The City University of
  New York-M
New School for Social Research-I
New York Medical College-M
New York University-I
New York University School of Medicine-M
Polytechnic Institute of Brooklyn-I
Rensselaer Polytechnic Institute-I
Rockefeller University-I
St. Bonaventure University-I
St. Johns University-I

State University of New York at Albany-D
State University of New York at Binghampton-D
State University of New York at Buffalo-I
State University of New York at Buffalo School of Medicine-M
State University of New York, College of Environmental Science and Forestry-I
State University of New York, Downstate Medical Center College of Medicine-M
State University of New York, Stony Brook-D
State University of New York, Stony Brook School of Medicine-M
State University of New York, Upstate Medical Center College of Medicine-M
Syracuse University-I
Union University-I
University of Rochester-I
University of Rochester School of Medicine and Dentistry-M
Yeshiva University-I

NORTH CAROLINA

Bowman Gray School of Medicine of Wake Forest University-M
Duke University-I
Duke University School of Medicine-M
North Carolina State University, Raleigh-I
University of North Carolina, Chapel Hill-I
University of North Carolina, Greensboro-D
University of North Carolina School of Medicine-M
Wake Forest University-D

NORTH DAKOTA

North Dakota State University-D
University of North Dakota-I
University of North Dakota School of Medicine-M

OHIO

Air Force Institute of Technology-D
Bowling Green State University-D
Case Western Reserve University-I
Case Western Reserve University School of Medicine-M
Cleveland State University-D
Kent State University-D
Miami University-D
Ohio State University-I
Ohio State University College of Medicine-M
Ohio University-I
University of Akron-I
University of Cincinnati-I
University of Dayton-D
University of Toledo-D

OKLAHOMA

Oklahoma State University-I
University of Oklahoma-I
University of Oklahoma College of Medicine-M
University of Tulsa-D

OREGON

Oregon Graduate Center-D
Oregon State University-I
Portland State University-D
University of Oregon-I
University of Oregon Medical School-M
University of Portland-I

PENNSYLVANIA

Bryn Mawr College-I
Carnegie-Mellon University-I
Drexel University-D
Duquesne University-I
Hahnemann Medical College and Hospital of Philadelphia-M
Jefferson Medical College of Thomas Jefferson University-M
Lehigh University-I
Pennsylvania State University-I
Pennsylvania State University College of Medicine-M
Philadelphia College of Pharmacy and Science-I
Temple University-I
Temple University School of Medicine-M
The Medical College of Pennsylvania-M
University of Pennsylvania-First 20
University of Pennsylvania School of Medicine-M
University of Pittsburgh-I
University of Pittsburgh School of Medicine-M
Villanova University-D

RHODE ISLAND

Brown University-I
Providence College-D
University of Rhode Island-I

SOUTH CAROLINA

Clemson University-D
Medical University of South Carolina College of Medicine-M
University of South Carolina-I
South Dakota School of Mines and Technology-D
South Dakota State University-I
University of South Dakota-I
University of South Dakota School of Medicine-M

TENNESSEE

George Peabody College-I
Meharry Medical College School of Medicine-M
Memphis State University-D
Tennessee Technological University-D
University of Tennessee-I
University of Tennessee-Memphis College of Medicine-M
Vanderbilt University-I
Vanderbilt University School of Medicine-M

TEXAS

Baylor University-I
Baylor College of Medicine-M
East Texas State University-D
Lamar University-D
North Texas State University-D
Rice University-I
Sam Houston State University-D
Southern Methodist University-D
Texas A & M University-I
Texas Christian University-D
Texas Tech University-I
Texas Tech University School of Medicine-M
Texas Woman's University-D
University of Houston-I
University of Texas, Arlington-D
University of Texas, Austin-I
University of Texas Dallas-D
University of Texas Medical Branch at Galveston Medical School-M
University of Texas Medical School at Houston-M
University of Texas, San Antonio Medical School-M
University of Texas Southwestern Medical School-M

UTAH

Brigham Young University-I
University of Utah-I
University of Utah College of Medicine-M
Utah State University-I

VERMONT

University of Vermont-D
University of Vermont College of Medicine-M

VIRGINIA

College of William and Mary-D
Institute of Textile Technology-D
Old Dominion University-D
University of Virginia-I
University of Virginia School of Medicine-M
Virginia Commonwealth University-I
Virginia Commonwealth University Medical College of Virginia-M
Virginia Polytechnic Institute-I

WASHINGTON

University of Washington-First 20
University of Washington School of Medicine-M
Washington State University-I

WEST VIRGINIA

West Virginia University-I
West Virginia University School of Medicine-M

WISCONSIN

Lawrence University Institute of Paper Chemistry-I
Marquette University-I
Medical College of Wisconsin-M
University of Wisconsin, Madison-First 20
University of Wisconsin Medical School-M
University of Wisconsin, Milwaukee-I

WYOMING

University of Wyoming-I

PUERTO RICO

University of Puerto Rico, Rio Piedras-D
University of Puerto Rico School of Medicine-M

Ranking of Top 100 Institutions

In 1974 the University of California at Berkeley enrolled the largest number of full- and part-time graduate students in the sciences and engineering, just as it did in 1973, and the University of Illinois at Urbana retained second place. The University of Michigan moved up from seventh to third place, and the University of Minnesota dropped from third to fifth. The biggest change in rank order occurred for the University of Southern California, which moved from eighteenth up to seventh place.

The top 100 institutions in terms of total graduate science enrollment accounted for 75 percent of the total in 1974, compared to 77 percent in 1973. They accounted for 77 percent of the full time and 69 percent of the part-time enrollment in 1974, compared to 79 percent and 73 percent, respectively, the previous year.

Institution name	Rank	Graduate enrollment Total	Graduate enrollment Full time	Graduate enrollment Part time
University of California, Berkeley		5,643	5,440	203
Total	1	5,643	5,440	203
University of Illinois		4,276	4,042	234
University of Illinois College of Medicine		735	551	184
Total	2	5,011	4,593	418
University of Michigan		4,680	4,453	227
University of Michigan Medical School		282	281	1
Total	3	4,962	4,734	228
University of Wisconsin		4,495	4,056	439
University of Wisconsin Medical School		324	300	24
Total	4	4,819	4,356	463
University of Minnesota		3,873	3,293	580
University of Minnesota, Minneapolis Medical School		663	570	93
Mayo Medical School		87	87	0
Total	5	4,623	3,950	673
Ohio State University		4,091	3,407	684
Ohio State University College of Medicine		263	247	16
Total	6	4,354	3,654	700
University of Southern California		4,187	2,362	1,825
University of Southern California, Medical School		97	85	12
Total	7	4,284	2,447	1,837
Rutgers, The State University		3,920	1,672	2,248
College of Medicine and Dentistry of New Jersey, Rutgers		94	92	2
Total	8	4,014	1,764	2,250
University of California, Los Angeles		3,403	3,171	232
University of California, Los Angeles Medical School		231	228	3
Total	9	3,634	3,399	235
Michigan State University		3,476	3,263	213
Total[1]	10	3,476	3,263	213
Cumulative total		44,820	37,600	7,220
University of Texas, Austin		3,086	2,726	340
University of Texas, Houston Medical School		70	59	11
University of Texas, San Antonio Medical School		65	63	2
University of Texas, Southwestern Medical School		145	118	27
University of Texas, Galveston Medical School		96	84	12
Total	11	3,442	3,050	392
University of Maryland		3,294	1,972	1,322
University of Maryland School of Medicine		147	136	11
Total	12	3,441	2,108	1,333
University of Washington		2,964	2,414	550
University of Washington School of Medicine		290	266	24
Total	13	3,254	2,680	574
Purdue University		3,180	2,930	250
Total	14	3,180	2,930	250
Pennsylvania State University		3,104	2,288	816
Pennsylvania State University College of Medicine		73	68	5
Total	15	3,177	2,356	821
Massachusetts Institute of Technology		3,066	3,053	13
Total	16	3,066	3,053	13
Stanford University		2,886	2,584	302
Stanford University School of Medicine		175	175	0
Total	17	3,061	2,759	302
Cornell University		2,689	2,670	19
Cornell University Medical School		90	86	4
Total	18	2,779	2,756	23
University of Arizona		2,708	2,104	604
University of Arizona College of Medicine		65	64	1
Total	19	2,773	2,168	605
Columbia University		2,257	1,753	504
Columbia University College of Physicians and Surgeons		514	273	241
Total	20	2,771	2,026	745
Cumulative total		75,764	63,486	12,278

See footnote at end of table.

Institution name	Rank	Graduate enrollment Total	Full time	Part time
Northeastern University		2,656	584	2,072
Total	21	2,656	584	2,072
Polytechnic Institute of Brooklyn		[illegible],322	542	2,080
Total	22	2,622	542	2,080
City University of New York Graduate Division		2,451	1,774	677
Mount Sinai School of Medicine, City University of New York		133	126	7
Total	23	2,584	1,900	684
Texas A & M University		2,557	2,057	500
Total	24	2,557	2,057	500
University of Pittsburgh		2,456	1,453	1,003
University of Pittsburgh School of Medicine		99	90	9
Total	25	2,555	1,543	1,012
University of Tennessee		2,421	1,708	713
University of Tennessee College of Medicine		102	82	20
Total	26	2,523	1,790	733
University of Oklahoma		2,327	1,095	1,232
University of Oklahoma College of Medicine		121	112	9
Total	27	2,448	1,207	1,241
Syracuse University		2,232	1,390	842
Total	28	2,232	1,390	842
University of North Carolina, Chapel Hill		2,011	1,746	265
University of North Carolina, Chapel Hill Medical School		217	205	12
Total	29	2,228	1,951	277
University of Florida		2,077	1,080	269
University of Florida College of Medicine		141	130	11
Total	30	2,218	1,938	280
Cumulative total		100,387	78,388	21,999

Institution name	Rank	Graduate enrollment Total	Full time	Part time
Indiana University		1,845	1,477	368
Indiana University School of Medicine		313	268	45
Total	31	2,15[illegible]	1,745	413
University of California, Davis		2,094	1,926	168
University of California, Davis Medical School		30	30	0
Total	32	2,124	1,956	168
University of Wisconsin, Milwaukee		2,078	1,083	995
Total	33	2,078	1,083	995
University of Massachusetts		2,067	1,800	267
University of Massachusetts Medical School		0	0	0
Total	34	2,067	1,800	267
University of Colorado		1,892	1,606	286
University of Colorado School of Medicine		151	133	18
Total	35	2,043	1,739	304
American University		2,042	835	1,207
Total	36	2,042	835	1,207
State University of New York at Buffalo		1,733	1,215	518
State University of New York at Buffalo School of Medicine		239	169	70
Total	37	1,972	1,384	588
Iowa State University		1,970	1,170	800
Total	38	1,970	1,170	800
Wayne State University		1,789	996	793
Wayne State University School of Medicine		169	143	26
Total	39	1,958	1,139	819
University of Connecticut		1,878	1,563	315
University of Connecticut School of Medicine		37	37	0
Total	40	1,915	1,600	315
Cumulative total		120,714	92,839	27,875

Table I-14. — Con.

Institution name	Rank	Graduate enrollment		
		Total	Full time	Part time
Harvard University, Cambridge		1,629	1,617	12
Harvard Medical School		271	270	1
Total	41	1,900	1,887	13
University of Missouri, Columbia		1,683	1,295	388
University of Missouri, Columbia School of Medicine		188	168	20
Total	42	1,871	1,463	408
University of Pennsylvania		1,676	1,252	424
University of Pennsylvania School of Medicine		188	174	14
Total	43	1,864	1,426	438
New York University		1,763	678	1,085
New York University School of Medicine		69	64	5
Total	44	1,832	742	1,090
State University of New York at Stony Brook		1,732	1,278	454
State University of New York at Stony Brook, School of Medicine		67	59	8
Total	45	1,799	1,337	462
Virginia Polytechnic Institute		1,765	1,139	626
Total	46	1,765	1,139	626
Colorado State University		1,764	1,441	323
Total	47	1,764	1,441	323
North Carolina State University, Raleigh		1,679	1,351	328
Total	48	1,679	1,351	328
University of Kansas		1,575	1,351	224
University of Kansas School of Medicine		89	81	8
Total	49	1,664	1,432	232
University of Houston		1,610	885	725
Total	50	1,610	885	725
Cumulative Total		138,462	105,942	32,520
University of Iowa		1,164	925	239
University of Iowa College of Medicine		445	386	59
Total	51	1,609	1,311	298
University of Chicago		1,375	1,343	32
University of Chicago Pritzker Medical School		214	206	8
Total	52	1,589	1,549	40
University of Cincinnati		1,314	842	472
University of Cincinnati College of Medicine		224	175	49
Total	53	1,538	1,017	521
Columbia University Teachers College		1,533	757	776
Total	54	1,533	757	776
New School for Social Research		1,525	251	1,274
Total	55	1,525	251	1,274
University of Georgia		1,458	1,313	145
Total	56	1,458	1,313	145
Florida State University		1,439	1,319	120
Total	57	1,439	1,319	120
Arizona State University		1,436	952	484
Total	58	1,436	952	484
George Washington University		1,217	351	866
George Washington University School of Medicine		185	137	48
Total	59	1,402	488	914
University of Hawaii		1,315	1,214	101
University of Hawaii School of Medicine		73	67	6
Total	60	1,388	1,281	107
Cumulative total		153,379	116,180	37,199

Institution name	Rank	Graduate enrollment		
		Total	Full time	Part time
Johns Hopkins University		1,310	1,181	129
Johns Hopkins University School of Medicine		75	75	0
Total	61	1,385	1,256	129
Texas Womans University		1,379	706	673
Total	62	1,379	706	673
West Virginia University		1,265	1,026	239
West Virginia University School of Medicine		101	89	12
Total	63	1,366	1,115	251
Oklahoma State University		1,339	1,158	181
Total	64	1,339	1,158	181
University of Utah		1,210	977	233
University of Utah College of Medicine		124	121	3
Total	65	1,334	[illegible]	236
Oregon State University		1,312	1,175	137
Total	66	1,312	1,175	137
Georgia Institute of Technology		1,304	1,021	283
Total	67	1,304	1,021	283
Washington State University		1,300	1,151	149
Total	68	1,300	1,151	149
University of Kentucky		1,216	1,001	215
University of Kentucky College of Medicine		72	71	1
Total	69	1,288	1,072	216
University of Nebraska		1,099	789	310
University of Nebraska College of Medicine		161	74	87
Total	70	1,260	863	397
Cumulative total		166,646	126,795	39,851
Yale University		1,014	997	17
Yale University School of Medicine		218	216	2
Total	71	1,232	1,213	19
Northwestern University		1,090	947	143
Northwestern University Medical School		125	117	8
Total	72	1,215	1,064	151
Illinois Institute of Technology		1,208	542	666
Total	73	1,208	542	666
Kansas State University		1,193	947	246
Total	74	1,193	947	246
University of Illinois, Chicago Circle		1,193	1,064	129
Total	75	1,193	1,064	129
University of Puerto Rico, Rio Piedras		953	652	301
University of Puerto Rico School of Medicine		209	209	0
Total	76	1,162	861	301
University of South Carolina		1,136	813	323
Total	77	1,136	813	323
University of Texas - Arlington		1,103	695	408
Total	78	1,103	695	408
Rensselaer Polytechnic Institute		1,097	823	274
Total	79	1,097	823	274
University of Southern Florida		1,088	768	320
Total	80	1,088	763	320
Cumulative Total		178,273	135,585	42,688

Institution name	Rank	Graduate enrollment Total	Full time	Part time
Louisiana State University		994	851	143
Louisiana State University, New Orleans Medical School		70	64	6
Louisiana State University, Shreveport Medical School		11	0	11
Total	81	1,075	915	160
Case Western Reserve University		935	740	195
Case Western Reserve University School of Medicine		135	129	6
Total	82	1,070	869	201
San Diego State University		1,067	405	662
Total	83	1,067	405	662
Howard University		927	627	300
Howard University College of Medicine		96	85	11
Total	84	1,023	712	311
University of Virginia		897	824	73
University of Virginia School of Medicine		118	118	0
Total	85	1,015	942	73
University of California, San Diego		960	920	40
University of California, San Diego Medical School		53	53	0
Total	86	1,013	973	40
University of Rhode Island		1,004	701	303
Total	87	1,004	701	303
Virginia Commonwealth University		688	446	242
Medical College of Virginia		314	275	39
Total	88	1,002	721	281
Boston University		771	583	188
Boston University School of Medicine		229	209	20
Total	89	1,000	792	208
St. Johns University, New York		1,000	247	753
Total	90	1,000	247	753
Cumulative total		188,542	142,862	45,680
Duke University		776	717	59
Duke University School of Medicine		217	208	9
Total	91	993	925	68
University of Akron		991	421	570
Total	92	991	421	570
State University of New York at Binghampton		983	495	488
Total	93	983	495	488
Texas Tech University		962	795	167
Texas Tech University School of Medicine		15	12	3
Total	94	977	807	170
Catholic University		969	297	672
Total	95	969	297	672
University of Rochester		699	612	87
University of Rochester School of Medicine and Dentistry		262	230	32
Total	96	961	842	119
Tulane University		580	360	220
Tulane University School of Medicine		376	275	101
Total	97	956	635	321
University of California, Santa Barbara		941	759	182
Total	98	941	759	182
Northern Illinois University		931	496	435
Total	99	931	496	435
Washington University		825	663	162
Washington University School of Medicine		103	101	2
Total	100	928	764	164
Cumulative total		198,172	149,303	48,869
All other institutions		67,588	45,893	21,695
Grand total		265,760	196,196	70,564

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[1] Includes Michigan State University College of Medicine.

SOURCE: National Science Foundation.

APPENDIX III

Statistical Tables

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Definitions of Types of Major Support

Four types of major support were defined as follows: Fellowships and traineeships, teaching assistantships, research assistantships, and all other mechanisms of support. The Federal Interagency Committee on Education (FICE) differentiates between the two *fellowship and traineeship* stipends as follows: (1) A fellowship is an "award made directly to or on behalf of a student selected in a national competition, to enable him to pursue postbaccalaureate training," and (2) a traineeship is "an educational award to a student selected by his university." Except for the student selection process, the terms and conditions of the two types of awards are generally identical.[7] Both fellowships and traineeships allow the graduate student a wide degree of freedom while pursuing his training without requiring any specific services to the institution in exchange.

A *graduate research assistant* is usually required to perform specific duties under the direction or supervision of a faculty member or other departmental professional staff member. These appointments are usually associated with research grants or contracts administered by faculty or other principal investigators from earmarked funds. This type of program may impose a considerable workload on the student. However, participation in such projects often affords the graduate student the opportunity to apply the research to his dissertation requirements, thus expediting the completion of his academic work.

Of the several mechanisms available for supporting gra[illegible] *assistantship* is often the most demanding in terms of time and effor[illegible] to entail rigorous and time-consuming duty assignments which sometim[illegible] required for completion of graduate work. On the other hand, such work experience is valuable to students preparing for careers in science, particularly those planning to join university faculties. Moreover, graduate teaching assistants render important services to universities.

The last category of support, known as *other* mechanisms, represents the group of students who are primarily self-supporting, or whose support cannot be described as one of the three types mentioned above. This would include support from savings, loans, families, part-time nonacademic work, etc.

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[7] Federal Interagency Committee on Education, Student Support Study Group, *Report on Federal Predoctoral Student Support, Part 1 - Fellowships and Traineeships* (Washington, D.C., Apr. 1970).

INSTRUCTIONS FOR COMPLETING THE DEPARTMENTAL DATA SHEET

GENERAL:

A Departmental Data Sheet (NSF Form 812) is to be completed by each science and engineering department that supplied similar data in our 1973 survey, and by any newly formed departments or any departments that were inadvertently omitted last year.

A list of the departments for which data were submitted in 1973 and additional departments that were listed in your 1973-74 Graduate School Catalog has been provided to your Dean on NSF Form 811. For medical schools, the National Institutes of Health has supplied a complete list of all basic science and clinical departments compiled from the Directory of American Medical Education, 1974-75, plus any public health departments administered by the medical school, to improve coverage in these fields.

A graduate student, whether full- or part-time, should be reported in only one department. Students in interdisciplinary programs should be reported by only one department, the one in which he is primarily enrolled.

Care should be taken to submit as complete and accurate a report as possible so that follow-up procedures with your institution may be reduced to a minimum, and more timely statistics can be made available.

DEFINITIONS:

Item 4—**Highest degree program offered.** Check the box which refers to the highest degree program offered by this science department in November 1974.

Item 5—A **full-time graduate student** is defined here as a student enrolled for an advanced degree (not a regular staff member) who is engaged in training activities in his field of science; these activities may embrace **any** appropriate combination of study, teaching, and research, depending upon **your institution's own policy.** Include persons working for a master's or doctoral degree even though they may have received an M.D. degree or doctoral degree in another field of study. Exclude such persons from the count of postdoctorals given in Item 8.

A **first-year** graduate student is defined as one who will have completed **less than a full year** of graduate study as of the beginning of the Fall term of 1974. All other students should be considered beyond their first year.

Students Receiving Financial Assistance. Report the number of full-time graduate students in the appropriate column where they receive the largest portion of their support. If a graduate student receives stipend support from more than one source, choose the **major** source category so that **using only whole numbers** the departmental data sheet will give a reasonably accurate **average** support picture for the department.

Under the Department of Defense, column (a), report graduate students receiving any form of support from the Departments of the Army, Navy, or Air Force.

Graduate students performing thesis or dissertation research at Government- and contractor-owned facilities are to be included as long as they are considered by the graduate dean as being enrolled for an advanced degree. For instance, graduate students supported by the AEC at Oak Ridge National Laboratory are enrolled for degree-credit at the University of Tennessee, Knoxville, and are to be included in the survey under "Other Federal Sources." Please note that support for graduate students by NIH, column (b), should **exclude** support from NIMH, which should be reported under "Other HEW," column (c). Students receiving their major support from AEC and NASA should now be included under "Other Federal Sources," column (e); students receiving support from NDEA belong under "Other HEW."

Students Who are Self-Supporting. Be sure to include self-supported students in your survey response. Please note that, aside from providing data on Sources of Support, your response should account for the total number of full-time graduate students in your department. Those students receiving the major portion of their support from personal, family, and loan sources should be reported under column (i), "Self-Supported Students."

A **foreign** student, line 12, is defined as one who has not attained his U.S. citizenship. Do not include native residents of a possession of the U.S., such as American Samoa. Applicants for U.S. citizenship are to be considered as "foreign" until the date their citizenship becomes effective.

Item 6—The number of graduate students who are working for advanced degrees, but who are not pursuing graduate work full time as defined in Item 5, are enumerated under the entries for **part time.** Part-time graduate students who have completed less than a full year of study in Fall 1974 are counted in column (a), "First-Year;" all other part-time students are to be counted under (b), "Beyond First."

Item 7—Students receiving any **G.I. benefits** are to be totalled in Item 7. Department chairmen are encouraged to coordinate with their institution's Office of Veterans Affairs to determine how many of their total graduate students (full-time and part-time) received any G.I. benefits, regardless of whether this was the major source of support or supplemental to another major source.

Item 8—Under **Postdoctorals** and/or **Research Associates**, include individuals with science or engineering doctorates and M.D.'s (including foreign degrees that are equivalent to U.S. doctorates) who devote **full time** to research activities or study in the department under temporary appointment carrying no academic rank such as instructor or above. Such appointments are usually for a **specific time period.** They may contribute to the academic program through seminars, lectures, or working with graduate students. Their postdoctoral activities have an element of additional training for them. Exclude medical residents, unless research training under the supervision of a Senior Mentor is the prime purpose of the appointment. Under column (a) enter the number of fellows and trainees receiving support under Federal training grants and/or fellowships. Under column (b) enter the number of research associates appointed with Federal support. Those remaining appointees with non-Government support are to be entered under column (c). Of the total in column (d), enter in column (e) the number receiving their Ph.D. or M.D. since and including 1970.

FIELDS OF SCIENCE:

This form is being mailed to all institutions of higher education in the U.S. that confer doctoral-level degrees in the sciences and/or engineering. Please return completed forms for each department in your institution represented by the following fields:

Engineering

- Aeronautical
- Agricultural
- Chemical
- Civil
- Electrical
- Engineering sciences
- Industrial
- Mechanical
- Metallurgical
- Mining
- Nuclear
- Petroleum
- Other engineering

Physical Sciences

- Astronomy
- Atmospheric sciences
- Chemistry
- Geosciences
- Oceanography
- Physics
- Other physical sciences

Mathematics

- Applied mathematics
- Mathematics
- Statistics

Life Sciences

- Agriculture
- Biological sciences
  - Anatomy
  - Biochemistry
  - Biophysics
  - Microbiology
  - Pathology
  - Pharmacology
  - Physiology
  - Biology
  - Biometry and biostatistics
  - Botany
  - Cell biology
  - Ecology
  - Entomology and parasitology
  - Genetics
  - Nutrition
  - Zoology
  - Other biosciences
- Other life sciences
  - Anesthesiology
  - Cardiology
  - Clinical pharmacology
  - Endocrinology
  - Gastroenterology
  - Hematology
  - Neurology
  - Obstetrics and gynecology
  - Opthalmology
  - Otorhinolaryngology
  - Pediatrics
  - Preventive medicine and community health
  - Psychiatry
  - Pulmonary disease
  - Radiology
  - Surgery
  - Clinical medicine
  - Nursing
  - Pharmaceutical sciences
  - Veterinary sciences
  - Other health related

Psychology

- Clinical psychology
- Experimental psychology
- Human development
- Physiological psychology
- Social psychology
- Other psychology

Social Sciences

- Agricultural economics
- Anthropology
- Economics (except Agric.)
- Geography
- History and philosophy of science
- Linguistics
- Political science
- Sociology
- Sociology and anthropology
- Other social sciences

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Please exclude from your response all graduate departments in the fields of education, law, humanities, music, the arts, physical education, library science, and all other non-science fields.

APPROVAL EXPIRES
DECEMBER 1977

SURVEY OF GRADUATE SCIENCE STUDENT SUPPORT AND POSTDOCTORALS, FALL 1974

PLEASE RETURN BY JANUARY 31, 1975

DEPARTMENTAL DATA SHEET

(NOTE: BEFORE FILLING OUT PLEASE READ THE INSTRUCTIONS ON THE ATTACHED)

1. NAME AND ADDRESS OF INSTITUTION: ______
2. SCIENCE OR ENGINEERING DEPARTMENT (OR UNIT) COVERED BY THIS DATA SHEET: ______
3. PERSON IN DEPARTMENT (OR UNIT) PREPARING THIS FORM: NAME: ______ TEL: (A/C) ______
4. HIGHEST DEGREE PROGRAM OFFERED BY DEPARTMENT (OR UNIT) IN FALL 1974 (CHECK ONE ONLY) MASTER'S ___ (1) DOCTORATE ___ (2)

DEPARTMENT CODE (LEAVE BLANK)

5. FULL–TIME GRADUATE STUDENTS

			STUDENTS RECEIVING FINANCIAL ASSISTANCE								SELF SUPPORTED STUDENTS (INCLUDING LOANS AND FAMILY SOURCES)	TOTAL FOR ALL SOURCES (SUM OF COLUMNS (A) THRU (I))
			FEDERAL SOURCES (EXCLUDING LOANS)					NON-FEDERAL SOURCES				
				HEW								
MECHANISMS OF SUPPORT	LEVEL OF STUDY		DEPT. OF DEFENSE (A)	NATIONAL INSTITUTES OF HEALTH (B)	OTHER HEW (C)	NATIONAL SCIENCE FOUNDATION (D)	OTHER FEDERAL SOURCES (E)	INSTITUTIONAL SUPPORT A/ (F)	FOREIGN SOURCES (G)	OTHER U.S. SOURCES B/ (H)	(I)	(J)
GRADUATE FELLOWSHIPS AND TRAINEESHIPS	FIRST YEAR	(1)									▨	
	BEYOND FIRST	(2)									▨	
GRADUATE RESEARCH ASSISTANTSHIPS	FIRST YEAR	(3)									▨	
	BEYOND FIRST	(4)									▨	
GRADUATE TEACHING ASSISTANTSHIPS	FIRST YEAR	(5)	▨						▨		▨	
	BEYOND FIRST	(6)	▨						▨		▨	
OTHER TYPES OF SUPPORT	FIRST YEAR	(7)										
	BEYOND FIRST	(8)										
TOTAL		(9)										
OF LINE (9) HOW MANY WERE WOMEN?	FIRST YEAR	(10)										
	BEYOND FIRST	(11)										
FOREIGN STUDENTS		(12)	OF THE FULL-TIME GRADUATE STUDENTS SHOWN IN LINE (9), COLUMN (J), HOW MANY WERE FOREIGN STUDENTS?									

6. PART-TIME GRADUATE STUDENTS

FALL 1974		
FIRST YEAR	BEYOND FIRST	TOTAL
(A)	(B)	(C)

7. G.I. BENEFITS

OF YOUR TOTAL GRADUATE ENROLLMENT (FULL- AND PART-TIME) HOW MANY RECEIVED ANY G.I. BENEFITS?
(A)

8. POSTDOCTORALS AND/OR RESEARCH ASSOCIATES

FALL 1974				
SOURCE OF SUPPORT			TOTAL	OF COL. (D), HOW MANY ARE RECENT DOCTORALS? C/
U.S. GOVERNMENT		NON-U.S. GOVT.		
FELLOWSHIPS/ TRAINEESHIPS	RESEARCH ASSOCIATES			
(A)	(B)	(C)	(D)	(E)

A/ INCLUDE INSTITUTIONS AND STATE AND LOCAL GOVERNMENTS.

B/ INCLUDE SUPPORT FROM NONPROFIT INSTITUTIONS, INDUSTRY, AND ALL OTHER U.S. SOURCES.

C/ SINCE AND INCLUDING 1970.

Table IV-1
SUMMARY OF RESPONSES FROM 7,505 GRADUATE DEPARTMENTS

~~Survey of Grad~~uate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	215	2,799	2,216	492	1,396	4,686	1,136	1,541		14,481
	Beyond first	(2)	333	6,886	3,016	1,260	1,661	6,807	1,307	2,962		24,232
Graduate research assistantships	First year	(3)	554	677	242	1,138	2,191	4,379	100	1,251		10,532
	Beyond first	(4)	2,100	2,817	680	5,698	6,193	8,486	200	2,796		28,970
Graduate teaching assistantships	First year	(5)		41	82	23	99	15,934		177		16,356
	Beyond first	(6)		116	75	46	175	29,462		288		30,162
Other types of support	First year	(7)	952	92	121	39	669	2,147	825	1,133	26,212	32,190
	Beyond first	(8)	1,401	202	86	95	1,134	3,615	993	1,926	28,821	38,273
TOTAL		(9)	5,555	13,630	6,518	8,791	13,518	75,516	4,561	12,074	55,033	195,196
Of line (9) how many were women?	First year	(10)	123	1,579	1,561	239	749	6,798	229	775	7,948	20,001
	Beyond first	(11)	182	2,967	1,682	785	1,217	10,247	236	1,371	7,868	26,555
FOREIGN STUDENTS		(12)										31,664

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
28,254	42,310	70,564	10,695	4,631	7,216	4,929	16,776	9,740

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-2

SUMMARY OF RESPONSES FROM 1,011 GRADUATE DEPARTMENTS IN ENGINEERING

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	60	99	69	116	562	879	350	465		2,600
	Beyond first	(2)	99	238	46	227	240	612	318	532		2,312
Graduate research assistantships	First year	(3)	364	92	36	498	850	1,112	33	583		3,568
	Beyond first	(4)	1,072	218	72	1,608	1,932	1,700	39	899		7,540
Graduate teaching assistantships	First year	(5)		0	0	6	18	2,214		42		2,280
	Beyond first	(6)		2	0	6	28	2,925		36		2,997
Other types of support	First year	(7)	558	8	5	8	162	391	268	369	4,905	6,674
	Beyond first	(8)	841	9	5	22	311	379	251	348	4,174	6,340
TOTAL		(9)	2,994	666	233	2,491	4,103	10,212	1,259	3,274	9,079	34,311
Of line (9) how many were women?	First year	(10)	19	18	13	24	97	283	19	69	281	823
	Beyond first	(11)	36	13	3	48	92	243	17	65	192	709
FOREIGN STUDENTS		(12)										11,064

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
10,796	13,021	23,817	2,151	109	635	342	1,086	556

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[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-3

SUMMARY OF RESPONSES FROM 748 GRADUATE DEPARTMENTS IN THE PHYSICAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	15	51	2	121	78	655	91	122		1,135
	Beyond first	(2)	43	222	21	293	102	968	158	481		2,288
Graduate research assistantships	First year	(3)	76	34	4	321	294	210	6	97		1,042
	Beyond first	(4)	678	758	101	2,966	1,987	978	14	417		7,899
Graduate teaching assistantships	First year	(5)		5	0	2	2	4,465		62		4,536
	Beyond first	(6)		5	3	11	9	7,279		93		7,400
Other types of support	First year	(7)	121	0	3	6	48	116	76	73	1,294	1,737
	Beyond first	(8)	218	2	4	8	113	251	112	211	2,244	3,163
TOTAL		(9)	1,151	1,077	138	3,728	2,633	14,922	457	1,556	3,538	29,200
Of line (9) how many were women?	First year	(10)	18	12	2	67	50	887	12	58	150	1,256
	Beyond first	(11)	51	142	19	277	148	1,141	21	138	252	2,189
FOREIGN STUDENTS		(12)										5,295

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
1,374	3,557	4,931	1,307	361	2,908	852	4,121	2,894

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-4

SUMMARY OF RESPONSES FROM 364 GRADUATE DEPARTMENTS IN THE MATHEMATICAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institu-tional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	5	14	2	50	7	306	68	37		489
	Beyond first	(2)	8	35	9	122	11	392	88	80		745
Graduate research assistantships	First year	(3)	65	16	6	77	27	129	3	12		335
	Beyond first	(4)	218	37	6	259	85	366	0	39		1,010
Graduate teaching assistantships	First year	(5)		0	1	1	11	2,158		9		2,180
	Beyond first	(6)		0	2	11	24	4,165		8		4,210
Other types of support	First year	(7)	55	0	1	7	25	159	48	110	1,371	1,776
	Beyond first	(8)	123	1	3	7	37	314	53	103	1,641	2,282
TOTAL		(9)	474	103	30	534	227	7,989	260	398	3,012	13,027
Of line (9) how many were women?	First year	(10)	11	6	2	16	10	725	9	45	298	1,122
	Beyond first	(11)	22	14	2	43	24	899	18	48	298	1,368
FOREIGN STUDENTS		(12)										2,448

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
First year	Beyond first	Total		Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
2,804	3,709	6,513	603	20	74	46	140	86

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-5

SUMMARY OF RESPONSES FROM 4,008 GRADUATE DEPARTMENTS IN THE LIFE SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance									Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources					
				HEW									
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	85	2,058	988	102	281	1,067	351	335		5,257
	Beyond first	(2)	64	4,924	893	279	403	1,726	414	626		9,329
Graduate research assistantships	First year	(3)	18	404	40	134	731	1,311	46	386		3,070
	Beyond first	(4)	61	1,468	123	496	1,562	2,969	113	928		7,720
Graduate teaching assistantships	First year	(5)		33	28	9	28	3,480		23		3,601
	Beyond first	(6)		88	36	8	45	[illegible]		51		6,695
Other types of support	First year	(7)	96	62	22	12	127	569	240	257	6,601	7,986
	Beyond first	(8)	77	122	22	16	211	933	377	437	6,282	8,477
TOTAL		(9)	401	9,159	2,152	1,056	3,388	18,512	1,541	3,043	12,883	52,135
Of line (9) how many were women?	First year	(10)	50	1,191	733	64	215	1,936	112	212	2,358	6,871
	Beyond first	(11)	33	2,004	514	187	348	2,968	89	363	1,769	8,275
FOREIGN STUDENTS		(12)										6,503

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
4,238	6,498	10,736	2,603	3,978	3,364	3,293	10,635	5,888

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-6
SUMMARY OF RESPONSES FROM 259 GRADUATE DEPARTMENTS IN PSYCHOLOGY

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	9	314	419	35	43	298	9	76		1,203
	Beyond first	(2)	41	799	850	86	332	726	22	239		3,095
Graduate research assistantships	First year	(3)	20	82	80	27	41	367	0	39		356
	Beyond first	(4)	44	244	221	117	129	632	1	174		1,562
Graduate teaching assistantships	First year	(5)		3	3	0	4	1,122		12		1,144
	Beyond first	(6)		19	5	0	5	2,718		32		2,779
Other types of support	First year	(7)	19	5	12	2	40	155	7	50	2,337	2,627
	Beyond first	(8)	60	7	16	2	110	723	11	425	3,920	5,274
TOTAL		(9)	193	1,473	1,606	269	704	6,741	50	1,047	6,257	18,340
Of line (9) how many were women?	First year	(10)	13	184	239	25	48	871	5	76	1,007	2,468
	Beyond first	(11)	24	408	461	78	206	1,824	14	277	1,582	4,874
FOREIGN STUDENTS		(12)										523

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
1,307	3,975	5,282	572	87	68	153	308	163

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-7

SUMMARY OF RESPONSES FROM 1,115 GRADUATE DEPARTMENTS IN THE SOCIAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance										
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of stu[illegible]		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	Self-supported students (including loans and family sources) (I)	Total for all sources (sum of columns (A) thru (I)) (J)
Graduate fellowships and traineeships	First year	(1)	41	263	736	68	425	1,491	267	506		3,797
	Beyond first	(2)	78	668	1,197	253	573	2,383	307	1,004		6,463
Graduate research assistantships	First year	(3)	11	49	76	81	248	1,250	12	134		1,861
	Beyond first	(4)	27	92	157	252	498	1,841	33	339		3,239
Graduate teaching assistantships	First year	(5)		0	50	5	36	2,495		29		2,615
	Beyond first	(6)		2	29	10	64	5,908		68		6,081
Other types of support	First year	(7)	103	17	78	4	267	757	186	274	9,704	11,390
	Beyond first	(8)	82	61	36	40	352	1,015	189	402	10,560	12,737
TOTAL		(9)	342	1,152	2,359	713	2,463	17,140	994	2,756	20,264	48,183
Of line (9) how many were women?	First year	(10)	12	168	572	43	329	2,096	72	315	3,354	7,461
	Beyond first	(11)	16	386	683	152	399	3,172	77	480	3,775	9,140
FOREIGN STUDENTS		(12)										5,831

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
7,735	11,550	19,285	3,459	76	167	243	486	153

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[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-8

SUMMARY OF RESPONSES FROM 1,364 MASTER'S DEPARTMENTS

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	33	668	810	8	234	528	162	237		2,680
	Beyond first	(2)	24	374	578	8	191	540	56	256		2,027
Graduate research assistantships	First year	(3)	29	30	21	68	269	773	6	149		1,345
	Beyond first	(4)	20	16	18	85	233	586	8	134		1,100
Graduate teaching assistantships	First year	(5)		5	50	2	32	2,528		23		2,640
	Beyond first	(6)		8	21	0	45	1,954		29		2,057
Other types of support	First year	(7)	265	23	76	10	211	579	106	247	6,498	8,015
	Beyond first	(8)	249	15	21	3	170	489	72	238	4,930	6,187
TOTAL		(9)	620	1,139	1,595	184	1,385	7,977	410	1,313	11,428	26,051
Of line (9) how many were women?	First year	(10)	34	567	674	15	223	1,488	73	203	2,321	5,598
	Beyond first	(11)	17	281	431	13	186	1,002	19	169	1,663	3,781
FOREIGN STUDENTS		(12)										2,627

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
9,204	9,202	18,406	2,592	132	68	192	392	162

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-9

SUMMARY OF RESPONSES FROM 228 MASTER'S DEPARTMENTS IN ENGINEERING

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	9	7	6	4	32	44	9	18		129
	Beyond first	(2)	3	1	0	0	9	42	7	12		74
Graduate research assistantships	First year	(3)	22	2	0	26	54	134	2	44		284
	Beyond first	(4)	7	3	0	24	48	97	0	49		228
Graduate teaching assistantships	First year	(5)		0	0	0	2	336		0		338
	Beyond first	(6)		0	0	0	5	240		2		247
Other types of support	First year	(7)	143	2	1	2	87	86	42	75	801	1,239
	Beyond first	(8)	70	1	1	1	83	45	30	47	540	818
TOTAL		(9)	254	16	8	57	320	1,024	90	247	1,341	3,357
Of line (9) how many were women?	First year	(10)	4	2	1	1	22	63	3	11	84	191
	Beyond first	(11)	3	0	0	1	13	44	4	5	65	135
FOREIGN STUDENTS		(12)										793

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
2,459	2,766	5,225	696	1	13	12	26	14

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[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-10

SUMMARY OF RESPONSES FROM 153 MASTER'S DEPARTMENTS IN PHYSICAL SCIENCES

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	0	3	0	1	10	28	3	1		46
	Beyond first	(2)	0	5	0	4	5	48	5	8		75
Graduate research assistantships	First year	(3)	4	1	0	9	31	37	1	40		123
	Beyond first	(4)	8	2	0	16	33	53	0	14		126
Graduate teaching assistantships	First year	(5)		0	0	0	0	430		0		430
	Beyond first	(6)		1	0	0	0	361		0		362
Other types of support	First year	(7)	6	0	3	0	5	46	7	8	209	284
	Beyond first	(8)	3	0	1	0	15	40	4	25	229	317
TOTAL		(9)	21	12	4	30	99	1,043	20	96	438	1,763
Of line (9) how many were women?	First year	(10)	0	0	0	2	2	93	1	8	25	131
	Beyond first	(11)	1	2	0	4	8	67	2	2	16	102
FOREIGN STUDENTS		(12)										207

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
375	524	899	159	3	22	24	49	31

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-11

SUMMARY OF RESPONSES FROM 101 MASTER'S DEPARTMENTS IN THE MATHEMATICAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	0	0	0	1	0	15	0	0		16
	Beyond first	(2)	1	0	0	1	0	9	0	3		14
Graduate research assistantships	First year	(3)	2	0	0	1	0	29	0	3		35
	Beyond first	(4)	0	0	0	5	0	23	0	0		28
Graduate teaching assistantships	First year	(5)		0	0	0	3	388		2		393
	Beyond first	(6)		0	1	0	0	281		0		282
Other types of support	First year	(7)	43	0	0	7	2	30	1	2	381	466
	Beyond first	(8)	103	0	0	2	3	23	2	5	314	452
TOTAL		(9)	149	0	1	17	8	798	3	15	695	1,686
Of line (9) how many were women?	First year	(10)	4	0	0	3	1	155	0	2	107	272
	Beyond first	(11)	2	0	0	1	0	105	0	1	51	160
FOREIGN STUDENTS		(12)										250

Part-time graduate students		
Fall 1974		
First year	Beyond first	Total
(A)	(B)	(C)
922	962	1,884

G.I. Benefits
Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?
(A)
134

Postdoctorals and/or research associates				
Fall 1974				
Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
U.S. Government		Non-U.S. Government		
Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(D)	(E)
0	0	1	1	1

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-12

SUMMARY OF RESPONSES FROM 434 MASTER'S DEPARTMENTS IN THE LIFE SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First [illegible]	(1)	12	569	496	1	62	156	122	41		1,459
	Beyond first	(2)	3	304	290	1	62	159	35	31		885
Graduate research assistantships	First year	(3)	1	8	5	8	101	128	3	26		280
	Beyond first	(4)	3	9	8	16	89	187	7	47		366
Graduate teaching assistantships	First year	(5)		5	12	1	2	474		11		505
	Beyond first	(6)		6	7	0	1	404		21		439
Other types of support	First year	(7)	31	13	12	1	31	108	32	45	1,537	1,810
	Beyond first	(8)	27	5	4	0	21	131	25	63	1,017	1,293
TOTAL		(9)	77	919	834	28	369	1,747	224	285	2,554	7,037
Of line (9) how many were women?	First year	(10)	17	500	439	2	56	335	58	29	614	2,050
	Beyond first	(11)	9	237	253	3	52	236	10	35	334	1,169
FOREIGN STUDENTS		(12)										699

Part-time graduate students			G.I. [illegible]	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
1,651	1,456	3,107	536	128	28	131	287	103

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-13

SUMMARY OF RESPONSES FROM 50 MASTER'S DEPARTMENTS IN PSYCHOLOGY

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	0	0	35	0	0	21	0	9		65
	Beyond first	(2)	0	2	8	0	0	49	0	6		65
Graduate research assistantships	First year	(3)	0	1	2	2	0	58	0	8		71
	Beyond first	(4)	0	0	1	2	2	41	0	5		51
Graduate teaching assistantships	First year	(5)		0	2	0	2	172		0		176
	Beyond first	(6)		0	2	0	0	98		1		101
Other types of support	First year	(7)	9	3	3	0	7	57	2	17	386	484
	Beyond first	(8)	12	2	1	0	3	60	0	5	382	465
TOTAL		(9)	21	8	54	4	14	556	2	51	768	1,478
Of line (9) how many were women?	First year	(10)	1	0	14	1	4	183	0	15	163	381
	Beyond first	(11)	0	1	4	0	3	96	0	8	166	278
FOREIGN STUDENTS		(12)										23

Part-time graduate students		
Fall 1974		
First year	Beyond first	Total
(A)	(B)	(C)
295	659	954

G.I. Benefits
Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?
(A)
106

Postdoctorals and/or research associates				
Fall 1974				
Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
U.S. Government		Non-U.S. Government		
Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(D)	(E)
0	1	5	6	3

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-14

SUMMARY OF RESPONSES FROM 298 MASTER'S DEPARTMENTS IN THE SOCIAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance										
			Federal sources (excluding loans)					Non-Federal sources					
				HEW									
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	Self-supported students (including loans and family sources) (I)	Total for all sources (sum of columns (A) thru (I)) (J)
Graduate fellowships and traineeships	First year	(1)	12	89	273	1	130	264	28	168		965
	Beyond first	(2)	17	62	280	2	115	233	9	196		914
Graduate research assistantships	First year	(3)	0	18	14	22	83	387	0	28		552
	Beyond first	(4)	2	2	9	22	61	185	1	19		301
Graduate teaching assistantships	First year	(5)		0	36	1	23	728		10		798
	Beyond first	(6)		1	11	0	39	570		5		626
Other types of support	First year	(7)	33	5	57	0	79	252	22	100	3,184	3,732
	Beyond first	(8)	34	7	14	0	45	190	11	93	2,448	2,842
TOTAL		(9)	98	184	694	48	575	2,809	71	619	5,632	10,730
Of line (9) how many were women?	First year	(10)	8	65	220	6	138	659	11	138	1,328	2,573
	Beyond first	(11)	2	41	174	4	110	454	3	118	1,031	1,937
FOREIGN STUDENTS		(12)										655

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
3,502	2,835	6,337	961	0	4	19	23	10

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-15

SUMMARY OF RESPONSES FROM 6,141 DOCTORATE DEPARTMENTS

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	182	2,131	1,406	484	1,162	4,158	974	1,304		11,801
	Beyond first	(2)	309	6,512	2,438	1,252	1,470	6,267	1,251	2,706		22,205
Graduate research assistantships	First year	(3)	525	647	221	1,070	1,922	3,606	94	1,102		9,187
	Beyond first	(4)	2,080	2,801	662	5,613	5,960	7,900	192	2,662		27,870
Graduate teaching assistantships	First year	(5)		36	32	21	67	13,406		154		13,716
	Beyond first	(6)		108	54	46	130	27,508		259		28,105
Other types of support	First year	(7)	687	69	45	29	458	1,568	719	886	19,714	24,175
	Beyond first	(8)	1,152	187	65	92	964	3,126	921	1,688	23,891	32,086
TOTAL		(9)	4,935	12,491	4,923	8,607	12,133	67,539	4,151	10,761	43,605	169,145
Of line (9) how many were women?	First year	(10)	89	1,012	887	224	526	5,310	156	572	5,627	14,403
	Beyond first	(11)	165	2,686	1,251	772	1,031	9,245	217	1,202	6,205	22,774
FOREIGN STUDENTS		(12)										29,037

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
19,050	33,108	52,158	8,103	4,499	7,148	4,737	16,384	9,578

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-16

SUMMARY OF RESPONSES FROM 783 DOCTORATE DEPARTMENTS IN ENGINEERING

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	51	92	63	112	530	835	341	447		2,471
	Beyond first	(2)	96	237	46	227	231	570	311	520		2,238
Graduate research assistantships	First year	(3)	342	90	36	472	796	978	31	539		3,284
	Beyond first	(4)	1,065	215	72	1,584	1,884	1,603	39	850		7,312
Graduate teaching assistantships	First year	(5)		0	0	6	13	1,878		42		1,942
	Beyond first	(6)		2	0	6	23	2,685		34		2,750
Other types of support	First year	(7)	415	6	4	6	75	305	226	294	4,104	5,435
	Beyond first	(8)	771	8	4	21	228	334	221	301	3,634	5,522
TOTAL		(9)	2,740	650	225	2,434	3,783	9,188	1,169	3,027	7,738	30,954
Of line (9) how many were women?	First year	(10)	15	16	12	23	75	220	16	58	197	632
	Beyond first	(11)	33	13	3	47	79	199	13	60	127	574
FOREIGN STUDENTS		(12)										10,271

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
8,337	10,255	18,592	1,455	108	622	330	1,060	542

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-17

SUMMARY OF RESPONSES FROM 595 DOCTORATE DEPARTMENTS IN THE PHYSICAL SCIENCES

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	15	48	2	120	68	627	88	121		1,089
	Beyond first	(2)	43	217	21	289	97	920	153	473		2,213
Graduate research assistantships	First year	(3)	72	33	4	312	263	173	5	57		919
	Beyond first	(4)	670	756	101	2,950	1,954	925	14	403		7,773
Graduate teaching assistantships	First year	(5)		5	0	2	2	4,035		62		4,106
	Beyond first	(6)		4	3	11	9	6,918		93		7,038
Other types of support	First year	(7)	115	0	0	6	43	70	69	65	1,085	1,453
	Beyond first	(8)	215	2	3	8	98	211	108	186	2,015	2,846
TOTAL		(9)	1,130	1,065	134	3,698	2,534	13,879	437	1,460	3,100	27,437
Of line (9) how many were women?	First year	(10)	18	12	2	65	48	794	11	50	125	1,125
	Beyond first	(11)	50	140	19	273	140	1,074	19	136	236	2,087
FOREIGN STUDENTS		(12)										5,088

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
999	3,033	4,032	1,148	358	2,886	828	4,072	2,863

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-18

SUMMARY OF RESPONSES FROM 263 DOCTORATE DEPARTMENTS IN THE MATHEMATICAL SCIENCES

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	5	14	2	49	7	291	68	37		473
	Beyond first	(2)	7	35	9	121	11	383	88	77		731
Graduate research assistantships	First year	(3)	63	16	6	76	27	100	3	9		300
	Beyond first	(4)	218	37	6	254	85	343	0	39		982
Graduate teaching assistantships	First year	(5)		0	1	1	8	1,770		7		1,787
	Beyond first	(6)		0	1	11	24	3,884		8		3,928
Other types of support	First year	(7)	12	0	1	0	23	129	47	108	990	1,310
	Beyond first	(8)	20	1	3	5	34	291	51	98	1,327	1,830
TOTAL		(9)	325	103	29	517	219	7,191	257	383	2,317	11,341
Of line (9) how many were women?	First year	(10)	7	6	2	13	9	570	9	43	191	850
	Beyond first	(11)	20	14	2	42	24	794	18	47	247	1,208
FOREIGN STUDENTS		(12)										2,198

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974				Fall 1974				
First year	Beyond first	Total	Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Source of support				Of Col. (D), how many are recent doctorals?[c]
				U.S. Government				
				Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
1,882	2,747	4,629	469	20	74	45	139	85

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-19
SUMMARY OF RESPONSES FROM 3,574 DOCTORATE DEPARTMENTS IN THE LIFE SCIENCES

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	73	1,489	492	101	219	901	229	294		3,798
	Beyond first	(2)	61	4,620	603	278	341	1,567	379	595		8,444
Graduate research assistantships	First year	(3)	17	396	35	126	630	1,183	43	360		2,790
	Beyond first	(4)	58	1,459	115	480	1,473	2,782	106	881		7,354
Graduate teaching assistantships	First year	(5)		28	16	8	26	3,006		12		3,096
	Beyond first	(6)		82	29	8	44	6,063		30		6,256
Other types of support	First year	(7)	65	49	10	11	96	461	208	212	5,064	6,176
	Beyond first	(8)	50	117	18	16	190	802	352	374	5,265	7,184
TOTAL		(9)	324	8,240	1,318	1,028	3,019	16,765	1,317	2,758	10,329	45,098
Of line (9) how many were women?	First year	(10)	33	691	294	62	159	1,601	54	183	1,744	4,821
	Beyond first	(11)	24	1,767	261	184	296	2,732	79	328	1,435	7,106
FOREIGN STUDENTS		(12)										5,804

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
(A)	(B)	(C)	(A)	Fellowships/ traineeships (A)	Research associates (B)	(C)	(D)	(E)
2,587	5,042	7,629	2,067	3,850	3,336	3,162	10,348	5,785

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-20

SUMMARY OF RESPONSES FROM 209 DOCTORATE DEPARTMENTS IN PSYCHOLOGY

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	9	314	384	35	43	277	9	67		1,138
	Beyond first	(2)	41	797	842	86	332	677	22	233		3,030
Graduate research assistantships	First year	(3)	20	81	78	25	41	309	0	31		585
	Beyond first	(4)	44	244	220	115	127	591	1	169		1,511
Graduate teaching assistantships	First year	(5)		3	1	0	2	950		12		968
	Beyond first	(6)		19	3	0	5	2,620		31		2,678
Other types of support	First year	(7)	10	2	9	2	33	98	5	33	1,951	2,143
	Beyond first	(8)	48	5	15	2	107	663	11	420	3,538	4,809
TOTAL		(9)	172	1,465	1,552	265	690	6,185	48	996	5,489	16,862
Of line (9) how many were women?	First year	(10)	12	184	225	24	44	688	5	61	844	2,087
	Beyond first	(11)	24	407	457	78	203	1,728	14	269	1,416	4,596
FOREIGN STUDENTS		(12)										500

Part-time graduate students		
Fall 1974		
First year	Beyond first	Total
(A)	(B)	(C)
1,012	3,316	4,328

G.I. Benefits
Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?
(A)
466

Postdoctorals and/or research associates				
Fall 1974				
Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
U.S. Government		Non-U.S. Government		
Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(D)	(E)
87	67	148	302	160

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[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Survey of Gradu[illegible] Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Table IV-21

SUMMARY OF RESPONSES FROM 717 DOCTORATE DEPARTMENTS IN THE SOCIAL SCIENCES

Full-time graduate students			Students receiving financial assistance									
			Federal sources (excluding loans)					Non-Federal sources			Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	29	174	463	67	295	1,227	239	338		2,832
	Beyond first	(2)	61	606	917	251	458	2,150	298	808		5,549
Graduate research assistantships	First year	(3)	11	31	62	59	165	863	12	106		1,309
	Beyond first	(4)	25	90	148	230	437	1,656	32	320		2,938
Graduate teaching assistantships	First year	(5)		0	14	4	13	1,767		19		1,817
	Beyond first	(6)		1	18	10	25	5,338		63		5,455
Other types of support	First year	(7)	70	12	21	4	188	505	164	174	6,520	7,658
	Beyond first	(8)	48	54	22	40	307	825	178	309	8,112	9,995
TOTAL		(9)	244	968	1,665	665	1,888	14,331	923	2,137	14,632	37,453
Of line (9) how many were women?	First year	(10)	4	103	352	37	191	1,437	61	177	2,526	4,888
	Beyond first	(11)	14	345	509	148	289	2,718	74	362	2,744	7,203
FOREIGN STUDENTS		(12)										5,176

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
First year	Beyond first	Total		Source of support			Total	Of Col. (D), how many are recent doctorals?[c]
				U.S. Government		Non-U.S. Government		
				Fellowships/ traineeships	Research associates			
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
4,233	8,715	12,948	2,498	76	163	224	463	143

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[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Table IV-22

SUMMARY OF RESPONSES FROM 2,773 GRADUATE DEPARTMENTS IN MEDICAL SCHOOLS

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	26	942	403	29	60	504	96	140		2,200
	Beyond first	(2)	31	2,587	456	57	85	851	48	242		4,357
Graduate research assistantships	First year	(3)	4	143	18	15	25	118	3	45		371
	Beyond first	(4)	15	546	43	34	55	266	1	88		1,048
Graduate teaching assistantships	First year	(5)		7	16	4	8	369		6		410
	Beyond first	(6)		48	17	7	14	905		13		1,004
Other types of support	First year	(7)	46	31	8	1	25	180	27	50	1,480	1,848
	Beyond first	(8)	25	87	14	3	54	254	25	114	1,365	1,941
TOTAL		(9)	147	4,391	975	150	326	3,447	200	698	2,845	13,179
Of line (9) how many were women?	First year	(10)	23	438	291	11	21	358	42	55	509	1,748
	Beyond first	(11)	14	889	222	27	27	554	12	108	374	2,227
FOREIGN STUDENTS		(12)										1,335

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
708	1,230	1,938	540	3,361	1,928	2,526	7,815	4,071

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-23

SUMMARY OF RESPONSES FROM 5,192 GRADUATE DEPARTMENTS IN PUBLIC SCHOOLS

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense (A)	National Institutes of Health (B)	Other HEW (C)	National Science Foundation (D)	Other Federal sources (E)	Institutional support[a] (F)	Foreign sources (G)	Other U.S. sources[b] (H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	160	1,889	1,623	218	1,022	2,270	608	857		8,647
	Beyond first	(2)	198	4,096	2,053	528	1,207	3,562	740	1,601		13,985
Graduate research assistantships	First year	(3)	334	501	202	826	1,873	3,799	85	1,078		8,698
	Beyond first	(4)	1,120	2,041	515	3,795	4,932	7,369	183	2,247		22,202
Graduate teaching assistantships	First year	(5)		40	58	18	89	13,069		137		13,411
	Beyond first	(6)		105	63	20	146	23,993		207		24,534
Other types of support	First year	(7)	773	76	99	27	469	1,458	581	877	19,461	23,821
	Beyond first	(8)	1,230	151	64	60	824	2,919	757	1,453	20,792	28,250
TOTAL		(9)	3,815	8,899	4,677	5,492	10,562	58,439	2,954	8,457	40,253	143,548
Of line (9) how many were women?	First year	(10)	85	1,126	1,206	143	614	5,204	161	540	6,056	15,135
	Beyond first	(11)	98	1,893	1,205	473	988	7,918	163	900	5,631	19,269
FOREIGN STUDENTS		(12)										21,652

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
17,570	26,041	43,611	7,648	2,186	4,297	2,699	9,182	5,538

[a] Includes support from institutions and State and local governments.
[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.
[c] Since and including 1970.
SOURCE: National Science Foundation.

Table IV-24

SUMMARY OF RESPONSES FROM 2,313 GRADUATE DEPARTMENTS IN PRIVATE SCHOOLS

Survey of Graduate Science Student Support and Postdoctorals, Fall 1974
Departmental Data Sheet

Full-time graduate students			Students receiving financial assistance								Self-supported students (including loans and family sources)	Total for all sources (sum of columns (A) thru (I))
			Federal sources (excluding loans)					Non-Federal sources				
				HEW								
Mechanisms of support	Level of study		Dept. of Defense	National Institutes of Health	Other HEW	National Science Foundation	Other Federal sources	Institutional support[a]	Foreign sources	Other U.S. sources[b]		
			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Graduate fellowships and traineeships	First year	(1)	55	910	593	274	374	2,416	528	684		5,834
	Beyond first	(2)	135	2,790	963	732	454	3,245	567	1,361		10,247
Graduate research assistantships	First year	(3)	220	176	40	312	318	580	15	173		1,834
	Beyond first	(4)	980	776	165	1,903	1,261	1,117	17	549		6,768
Graduate teaching assistantships	First year	(5)		1	24	5	10	2,865		40		2,945
	Beyond first	(6)		11	12	26	29	5,469		81		5,628
Other types of support	First year	(7)	179	16	22	12	200	689	244	256	6,751	8,369
	Beyond first	(8)	171	51	22	35	310	696	236	473	8,029	10,023
TOTAL		(9)	1,740	4,731	1,841	3,299	2,956	17,077	1,607	3,617	14,780	51,648
Of line (9) how many were women?	First year	(10)	38	453	355	96	135	1,594	68	235	1,892	4,866
	Beyond first	(11)	84	1,074	477	312	229	2,329	73	471	2,237	7,286
FOREIGN STUDENTS		(12)										10,012

Part-time graduate students			G.I. Benefits	Postdoctorals and/or research associates				
Fall 1974			Of your total graduate enrollment (full- and part-time) how many received any G.I. Benefits?	Fall 1974				
				Source of support				
				U.S. Government				
First year	Beyond first	Total		Fellowships/ traineeships	Research associates	Non-U.S. Government	Total	Of Col. (D), how many are recent doctorals?[c]
(A)	(B)	(C)	(A)	(A)	(B)	(C)	(D)	(E)
10,684	16,269	26,953	3,047	2,445	2,919	2,230	7,594	4,202

[a] Includes support from institutions and State and local governments.

[b] Includes support from nonprofit institutions, industry, and all other U.S. sources.

[c] Since and including 1970.

SOURCE: National Science Foundation.

Other Science Resources Publications

REPORTS	NSF No.	Price
National Patterns of R&D Res[illegible]s: Funds & Manpower in the United S[illegible], 1953-1976	76-310	$0.95
Reviews of Data on Science Resources, No. 27, "Education and Work Activities of Federal Scientific and Technical Personnel, January 1974"	76-308	$0.40
Reviews of Data on Science Resources, No. 26, "Energy and Energy-Related R&D Activities of Federal Installations and Federally Funded Research and Development Centers: Funds, FY 1973-75 (est.) and Manpower, Jan. 1973-75 (est.)"	76-304	$0.35
Reviews of Data on Science Resources, No. 25, "Doctoral Scientists and Engineers in Private Industry, 1973"	76-302	$0.35
Projections of Degrees and Enrollment in Science and Engineering Fields to 1985	76-301	$1.15
Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1974, 1975, and 1976, Volume XXIV	75-334	$1.80
Characteristics of the National Sample of Scientists and Engineers, 1974. Part I. Demographic and Educational	75-333	$1.90
An Analysis of Federal R&D Funding by Function, Fiscal Years 1969-1976	75-330	$1.80
The 1972 Scientist and Engineer Population Redefined. Volume 2. Labor Force and Employment Characteristics	75-327	$2.65
Detailed Statistical Tables. Federal Funds for Research, Development, and Other Scientific Activities, Fiscal Years 1974, 1975, and 1976, Volume XXIV	75-323	—
Research and Development in Industry, 1973. Funds, 1973; Scientists & Engineers, Jan. 1974	75-315	$1.95
The 1972 Scientist and Engineer Population Redefined. Volume 1. Demographic, Educational, and Professional Characteristics	75-313	$3.70
Detailed Statistical Tables. Characteristics of Doctoral Scientists and Engineers in the United States, 1973	75-312-A	—
Characteristics of Doctoral Scientists and Engineers in the United States, 1973	75-312	$1.15
Reviews of Data on Science Resources, No. 23, "R&D Expenditures of State Public Institutions, Fiscal Year 1973"	75-311	$0.35
Reviews of Data on Science Resources, No. 24, "Work Activities of Employed Doctoral Scientists and Engineers in the U.S. Labor Force, July 1973"	75-310	$0.65
R&D Activities of Independent Nonprofit Institutions, 1973	75-308	$1.90
Research and Development in State Government Agencies, Fiscal Years 1972 and 1973	75-303	$1.80
Young and Senior Science and Engineering Faculty, 1974: Support, Research Participation, and Tenure	75-302	$1.70
Projections of Science and Engineering Doctorate Supply and Utilization, 1980 and 1985	75-301	$1.30

HIGHLIGHTS		
"The Nation's Science and Engineering Manpower Resources: 1974"	76-312	—
"Academic R&D Spending Up 12 Percent in FY 1975"	76-307	—
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